



3330 Cameron Park Drive, Ste 550
Cameron Park, California 95682
(530) 676-6004 ~ Fax: (530) 676-6005

February 7, 2006
Project No. 2029-2400-01

Mr. Barry Marcus
Sacramento County Environmental Management Department
8475 Jackson Road, Suite 230
Sacramento, CA 95826-3904

Subject: Well Installation Report
Kwik Serv Fueling Station
2400 Fruitridge Road
Sacramento, California
LOP #G028

Dear Mr. Marcus:

On behalf of Mr. Bal Soin, Stratus Environmental, Inc. (Stratus) has prepared this *Well Installation Report* for the Kwik Serv Fueling Station (the site), located at 2400 Fruitridge Road, Sacramento, California (Figure 1). Stratus has previously recommended that the environmental case at this site be considered for closure. In a letter dated February 16, 2005, Sacramento County Environmental Management Department (SCEMD) requested that a groundwater monitoring well be installed to verify low petroleum hydrocarbon concentrations previously reported in groundwater beneath the site. SCEMD also requested that a soil vapor extraction (SVE) test be completed to evaluate the feasibility of extracting petroleum hydrocarbon laden soil vapors from the subsurface.

Stratus has implemented a portion of the work activities proposed in the *Well Installation and Soil Vapor Extraction Test Work Plan* (May 3, 2005). This report documents the installation of a groundwater monitoring well and two vapor extraction wells. Details associated with completion of the well installations, and the findings of environmental assessment activities associated with implementation of the work, are described in the following subsections of this document. The findings of the proposed SVE test will be documented in a separate report.

SITE DESCRIPTION

The subject site is an operating service station situated on the southeastern corner of the intersection of Fruitridge Road and 24th Street, in Sacramento, California (Figure 1). The existing fuel storage system consists of one 12,000-gallon gasoline and two 10,000-

gallon gasoline underground storage tanks (USTs) located in the northwestern portion of the property. There are five dispenser islands with associated product lines, four in the north central region and one in the west central region of the site. Figure 2 depicts the approximate locations of the USTs, dispensers, and associated product lines.

SITE BACKGROUND

The following was summarized from information obtained from SCEMD records, reports prepared by consultants representing previous service station operators, and work completed by Stratus. Former UST, soil boring, and monitoring well locations discussed in this section are illustrated on Figure 2.

Three USTs (10,000-gallon and 8,000-gallon tanks used to store regular unleaded gasoline, and one 6,000-gallon tank used to store premium unleaded gasoline) were removed from the site on June 29, 1987. These USTs were reportedly situated in the southwestern corner of the subject property. Total petroleum hydrocarbons as gasoline (TPHG) were apparently reported at concentrations up to 77 milligrams per kilogram (mg/Kg); sampling locations, analytical data tables, or certified analytical results were not located in the SCEMD records. An overexcavation was reportedly completed to remove hydrocarbon impacted soil in this area. Additional soil sampling apparently confirmed that the hydrocarbon impacted soil was removed from this area.

A 250-gallon waste oil UST was removed from the site in July 1987. The waste oil UST was situated on the south side of the station building, and a 990-gallon waste oil UST was installed in the same general area at this time. Gravimetric waste oil as petroleum oil (200 mg/Kg) was detected in a soil sample collected within the former UST cavity area.

A groundwater monitoring well (MW-1) was installed immediately west of the former waste oil UST in October 1987. This well was later re-named EW-1 in 1992. Well MW-1/EW-1 was sampled 16 times between October 1987 and August 1995. TPHG and benzene, toluene, ethylbenzene, and xylene (BTEX) concentrations were predominately reported below laboratory detection limits. TPHG and benzene were detected at maximum concentrations of 52 micrograms per liter ($\mu\text{g/L}$) and 0.98 $\mu\text{g/L}$, respectively, for samples collected during this 8-year period. Total oil and grease (O&G) was reported in two samples collected from the well, at concentrations of 70 $\mu\text{g/L}$ and 500 $\mu\text{g/L}$.

Three soil borings (B-1 through B-3) were advanced to approximately 21.5 feet below ground surface (bgs) on October 19, 1990. Each boring was advanced within approximately 10 feet of the 990-gallon waste oil UST. O&G was apparently reported in samples collected from 6 feet bgs, at concentrations up to 530 mg/Kg. Soil samples collected from 11, 16, and 21 feet bgs were reportedly not impacted with O&G.

On December 18, 1991, the 990-gallon waste oil UST was removed from the site. An overexcavation was subsequently completed to remove hydrocarbon impacted soil in this area. The dimensions of the excavation were approximately 23 feet in the east-west direction and 20 feet in the north-south direction. Soil immediately beneath the former waste oil UST was removed to approximately 15 feet bgs; soil around the perimeter of the former waste oil UST cavity was removed to approximately 7 feet bgs. The excavation was backfilled with pea gravel. The quantity of soil removed from the subsurface, and soil disposal information, is currently unknown.

Three additional groundwater monitoring wells (MW-1 through MW-3) were installed on October 19, 1992. Groundwater was encountered at approximately 41 feet bgs at this time. TPHG and benzene were not detected in groundwater samples collected from these wells between November 1992 and August 1995. Petroleum hydrocarbons were not detected in any of the samples collected from well borings MW-1 through MW-3. Radial groundwater flow, to the north, northeast, east, and southeast away from well MW-2, was consistently reported for monitoring events completed in 1994 and 1995. Wells EW-1 and MW-1 through MW-3 appear to have been abandoned. Information regarding abandonment of these wells is not currently available to Stratus.

MVP Petroleum Engineers, Inc. (MVP) removed one 550-gallon fiberglass waste oil UST and replaced five fuel dispensers with associated product piping, on behalf of Kwik Serv, in December 2002 and January 2003. The former waste oil UST was situated in the same general area as the previous waste oil USTs. This fiberglass waste oil UST appeared to be in good condition. Compliance samples were not collected beneath the former waste oil UST due to extensive pea gravel in the excavation.

Analytical results from soil samples collected beneath the dispenser islands and along the product lines in December 2002, indicated petroleum hydrocarbons were present beneath the western dispenser island at depths of 3 to 4.5 feet bgs, and in the piping trench leading to the western dispenser island at a depth of 3 feet bgs. Low concentrations of petroleum hydrocarbons were also detected along the other product lines that supply the north central fuel dispensers at a depth of 3 feet bgs. TPHG was reported at a maximum concentration of 2,400 mg/Kg at 4.5 feet bgs beneath the western dispenser island. The fuel additive methyl tertiary butyl ether (MTBE) was reported beneath the western dispenser and along the associated product lines at a maximum concentration of 20 mg/Kg.

Stratus oversaw the advancement of six exploratory soil borings (B-1 through B-6) on-site between August 16 and 18, 2004, to further characterize subsurface petroleum hydrocarbon impact beneath the site. Groundwater was encountered at approximately 29 feet bgs at the time of this investigation. Fuel-based petroleum hydrocarbon concentrations were reported below laboratory detection limits for all soil samples

collected from the borings. MTBE was detected in groundwater samples collected from three of the soil borings, at concentrations ranging from 0.98 µg/L to 12 µg/L.

Stratus submitted a *Water Supply Well Survey Report* on February 7, 2005, following an evaluation of water supply well usage in the site vicinity. The only water supply well identified during a California Department of Water Resources (DWR) records review and field reconnaissance, known to be currently in use, is situated approximately 2,100 feet south of the site and is screened below 282 feet bgs. Based on the findings of the water supply well survey, Stratus concluded that potential risk to water supply wells resulting from dissolved petroleum hydrocarbon impact beneath the site was very low.

SCOPE OF WORK

The objectives of the work were to:

- Install wells screened within the vadose zone to enable completion of an SVE test.
- Complete a groundwater monitoring well to enable verification of low petroleum hydrocarbon concentrations in groundwater previously documented beneath the site.
- Further evaluate the extent of petroleum hydrocarbon impact beneath the site.

To accomplish these objectives, Stratus implemented the following work activities:

- Drilled and installed two (2) 2-inch diameter vapor extraction wells (VW-1 and VW-2) to approximately 18 feet bgs.
- Drilled and installed one (1) 2-inch diameter groundwater monitoring well (MW-4) to approximately 40 feet bgs.
- Collected soil samples during the advancement of each well boring.
- Developed and sampled the newly installed monitoring well.
- Surveyed the elevation and location of each newly installed well.

Prior to initiating work activities, Stratus obtained drilling permits from SCEMD. Underground Service Alert, SCEMD, and the property owner were notified 48 hours prior to beginning work activities. Standard field practices and procedures, and a quality assurance plan for all fieldwork, are described in Appendix A. Copies of the drilling permits are provided in Appendix B. All work was conducted under the direct supervision of a State of California Professional Geologist.

FIELD ACTIVITIES

Soil Borings

A Stratus geologist oversaw Cascade Drilling Company of Rancho Cordova, California (C-57 #717510) complete the drilling activities on October 31, 2005. The drilling was completed using a limited access drilling rig equipped with 8-inch diameter hollow stem augers. Each soil boring was converted to a groundwater monitoring well or soil vapor extraction well, as described below. Well locations are shown on Figure 2.

Soil samples were collected in 5-foot intervals using a California-type split-spoon sampler equipped with three precleaned brass tubes. The ends of the bottom-most, intact tube from each sample interval were lined with Teflon™ sheets, capped, and sealed. Each sample was labeled, placed in a resealable plastic bag, and stored in an ice-chilled cooler. Strict chain-of-custody procedures were followed from the time the samples were collected until the time the samples were relinquished to the laboratory. Soils were classified on-site using the Unified Soil Classification System. Boring logs detailing soil stratigraphy are presented in Appendix B.

Additional soil from each sampled interval was sealed in plastic bags to allow the accumulation of volatile organic compound (VOC) vapors within the headspace. A photo-ionization detector (PID) was used to measure VOC concentrations from each sample, in parts per million by volume (ppmv). PID results are included on the boring logs presented in Appendix B. PID results were also used in evaluating which soil samples should be sent to the laboratory for chemical analysis.

Monitoring Well Installation

Monitoring well MW-4 was constructed using 2-inch diameter PVC well casing and 20 feet of 0.02-inch diameter factory slotted casing, situated from approximately 20 to 40 feet bgs. A filter pack of Lonestar™ #3 sand was placed in the annular space around the well from the bottom of the casing to approximately two feet above the top of the well screen. Bentonite was placed on top of the filter pack and hydrated with clean water to provide a transition seal for the well. The remaining annular space around the well casing was backfilled with neat cement up to surface grade. A traffic rated vault box was placed over the wells, and a watertight locking cap was placed on the top of the well casing. Well construction details and a DWR well completion report for well MW-4 is included in Appendix B.

Vapor Extraction Well Installation

Wells VW-1 and VW-2 were constructed using 2-inch diameter PVC well casing and 15 feet of 0.03-inch diameter factory slotted casing, situated from approximately 3 to 18 feet

bgs. A filter pack of LonestarTM medium aquarium sand was placed in the annular space around the well from the bottom of the borehole to approximately 0.5 feet above the top of the well screen. Approximately one foot of bentonite was placed on top of the filter pack and hydrated with clean water to provide a transition seal for the well. The remaining annular space around the well casing was backfilled with neat cement up to surface grade. A traffic rated vault box was placed over the well, and a watertight locking cap was placed on the top of the well casing. Well construction details and DWR well completion reports for wells VW-1 and VW-2 are included in Appendix B.

Monitoring Well Development and Sampling

Well MW-4 was developed on November 14, 2005, by surging and bailing with a bailer. Approximately 17 well casing volumes were evacuated from the casing during well development activities. Stratus returned to the site on November 16, 2005, to sample well MW-4. Prior to sampling, approximately 3 well casing volumes were purged from the monitoring well. A groundwater sample was subsequently collected using a new, clean, disposable bailer. Groundwater recovered in the bailer was transferred to properly preserved containers (VOAs) supplied by the laboratory. The sample was subsequently labeled, identified on a chain-of-custody form, and placed in an ice-chilled cooler. Field data sheets from the well development and groundwater sampling events are presented in Appendix C.

Waste Management

Drill cuttings and wastewater generated during drilling, well development, and well sampling activities were placed in DOT-approved 55-gallon steel drums and stored on-site pending disposal. A composite sample of the soil cuttings was collected and analyzed for disposal characterization. Kane Drum Removal of Carmichael, California, transported 7 drums of soil and 2 drums of wastewater to appropriate disposal facilities in December 2005.

Surveying

Morrow Surveying, Inc. of West Sacramento, California, surveyed the elevations and locations of wells MW-4, VW-1, and VW-2 in December 2005. Well elevations were established to the nearest 0.01 vertical feet. Latitudes and longitudes of all wells were established using the Global Positioning System (GPS). California State Plane Coordinates, latitudes and longitudes of the wells, and well elevations are included on the surveyor's map presented in Appendix D. Well survey data was forwarded to the California State Water Resources Control Board for inclusion in the Geotracker database.

Analytical Methods

Soil and groundwater samples were forwarded to Alpha Analytical, Inc., a California state-certified laboratory (ELAP #2019), for chemical analysis under strict chain-of-custody procedures. Soil and groundwater samples were analyzed for TPHG using USEPA Method SW8015B DHS/LUFT Manual, and for BTEX, MTBE, ethyl tertiary butyl ether (ETBE), di-isopropyl ether (DIPE), tertiary amyl methyl ether (TAME), tertiary butyl alcohol (TBA), and 1,2-dichloroethane (1,2-DCA) using USEPA Method SW8260B. Soil analytical results are presented in Table 1 and groundwater analytical results are presented in Table 2. Certified Analytical Reports with chain-of-custody records are presented in Appendix E.

FINDINGS

Site Geology

Fine-grained soils (predominately silt) were observed from surface grade to depths ranging from approximately 9 to 18 feet bgs. Sandy silt and silty sand mixtures were observed beneath these fine-grained soils to approximately 23 feet bgs. Predominately sandy soils were encountered between approximately 23 and 36 feet bgs; groundwater was first encountered within these sandy soils at approximately 30 feet bgs. Sandy clay was observed at approximately 36 feet bgs at borings B-3 and B-5. This sandy clay stratum appears to be less than 3 feet in thickness. Sandy soils were observed at approximately 40 feet bgs in borings B-1, B-3, and B-5, the maximum depth explored at the site. Flowing sand conditions were encountered below the sandy clay stratum.

Depth to groundwater was measured at 28.96 feet bgs in well MW-4 on November 16, 2005. The current groundwater flow direction beneath the site is not known.

Analytical Results

Soil Analytical Results

Petroleum hydrocarbon and fuel additive concentrations were reported below laboratory detection limits for each of the soil samples. Given that petroleum hydrocarbons were not reported in any soil samples collected during this investigation, or the August 2004 site assessment activities, the extent of petroleum hydrocarbon impact to soil appears to be adequately characterized.

Groundwater Analytical Results

MTBE (8.9 µg/L) was reported in the groundwater sample collected from well MW-4. TPHG, BTEX, and additional fuel additive concentrations were reported below laboratory detection limits in the well MW-4 groundwater sample.

SUMMARY AND DISCUSSION

The following summarizes the findings of the investigation:

- Two vapor extraction wells, and one groundwater monitoring well, were installed during this phase of work.
- Petroleum hydrocarbon and fuel additive concentrations were reported below laboratory detection limits in all soil samples collected from the well borings.
- MTBE (8.9 µg/L) was reported in the groundwater sample collected from well MW-4. TPHG, BTEX compounds, ETBE, DIPE, TAME, TBA, or 1,2-DCA were not reported in this sample.

Historical groundwater analytical data from wells MW-1 through MW-3 (installed and monitored by the previous responsible party) indicate that groundwater beneath the site had negligible petroleum hydrocarbon impact. Groundwater samples from six exploratory soil borings drilled in August 2004 reported very low concentrations of MTBE (0.98 µg/L [B-4] to 12 µg/L [B-5]) in three of the borings. Well MW-4 was installed immediately adjacent to boring B-5, where the highest MTBE concentration in groundwater samples was reported. MTBE was reported in well MW-4 at 8.9 µg/L.

The results from both the 2004 and 2005 investigations indicate that dissolved MTBE is present in the groundwater at concentrations below the primary Maximum Contaminant Level (MCL) of 13 µg/L. Stratus recommends that well MW-4 be monitored and sampled for four more quarters (one hydrologic cycle). If concentrations of MTBE remain at the levels reported recently, then Stratus will recommend closure of the groundwater investigation, pending results of the SVE testing.

LIMITATIONS

This report was prepared in general accordance with accepted standards of care that existed at the time this work was performed. No other warranty, expressed or implied, is made. Conclusions and recommendations are based on field observations and data obtained from this work and previous investigations. It should be recognized that definition and evaluation of geologic conditions is a difficult and inexact art. Judgments leading to conclusions and recommendations are generally made with an incomplete

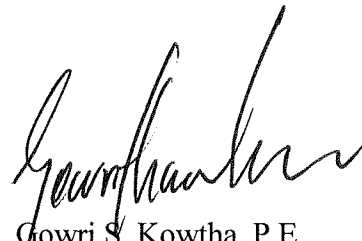
knowledge of the subsurface conditions present. More extensive studies may be performed to reduce uncertainties. This report is solely for the use and information of our client unless otherwise noted.

If you have any questions or comments concerning this document, please contact Gowri Kowtha at (530) 676-6001.

Sincerely,

STRATUS ENVIRONMENTAL, INC.


Scott G. Bittinger, P.G.
Project Geologist


Gowri S. Kowtha, P.E.
Project Manager

Attachments:	Table 1	Soil Analytical Results
	Table 2	Groundwater Analytical Results
	Figure 1	Site Location Map
	Figure 2	Site Plan
	Appendix A	Field Practices and Procedures and Quality Assurance Plan
	Appendix B	Boring Logs, Well Details, DWR Well Completion Forms, And Drilling Permits
	Appendix C	Field Data Sheets
	Appendix D	Surveyor's Map
	Appendix E	Certified Analytical Reports and Chain-of-Custody Documentation

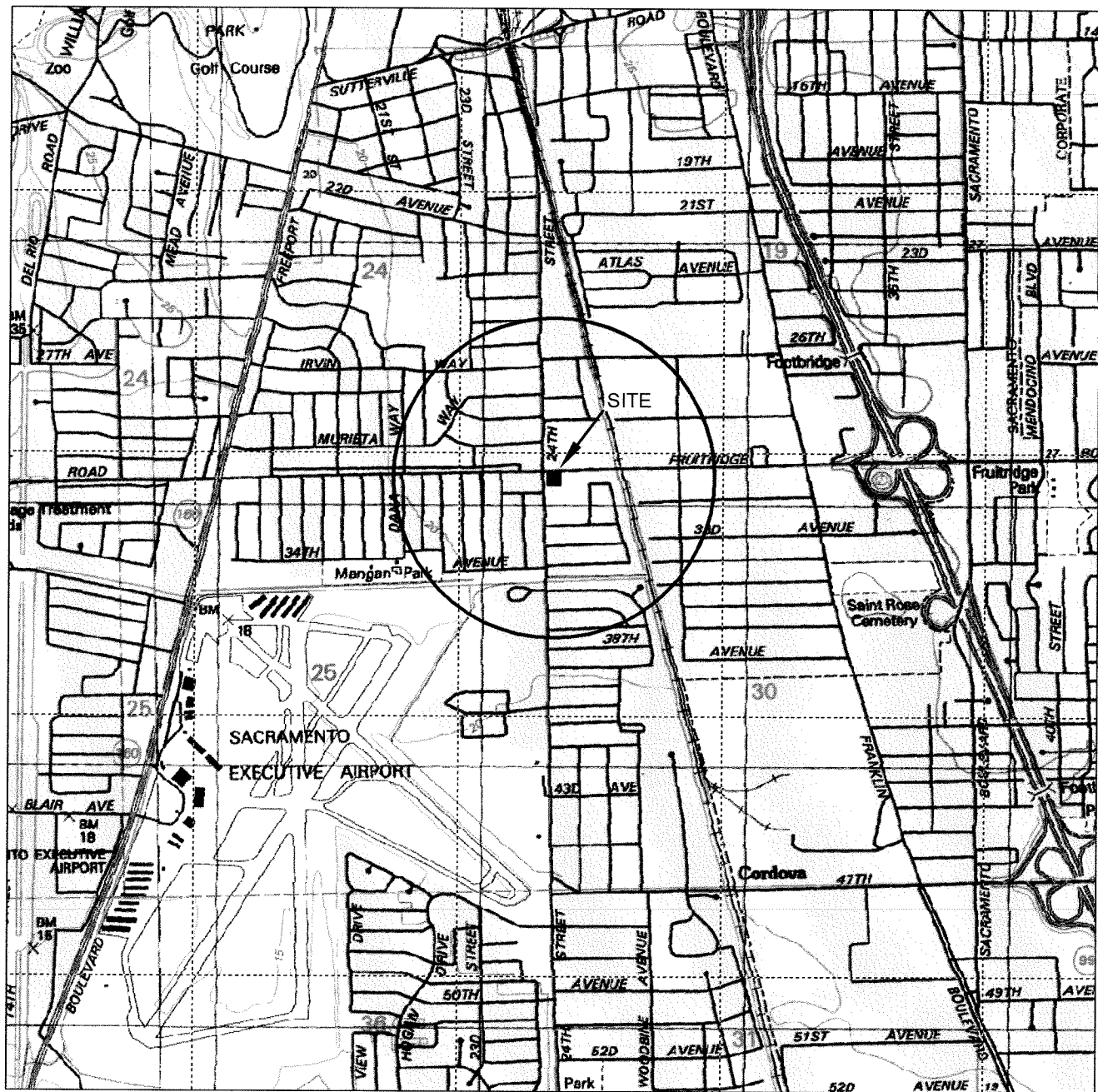
cc: Mr. Bal Soin, Kwik Serv Fueling Station
Ms. Christyl Escarda, Central Valley Regional Water Quality Control Board

TABLE 1
SOIL ANALYTICAL RESULTS
KWIK SERV SERVICE STATION
2400 FRUITRIDGE ROAD
SACRAMENTO, CALIFORNIA

Sample ID	Sample Depth (feet bgs)	Date Collected	TPHG (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	MTBE (mg/Kg)	TBA (mg/Kg)	DIPE (mg/Kg)	ETBE (mg/Kg)	TAME (mg/Kg)	1,2-DCA (mg/Kg)
<u>Boring MW-4</u>													
MW-4-16	16	10/31/05	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	<0.02	<0.02	<0.02	<0.02
MW-4-31	31	10/31/05	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	<0.02	<0.02	<0.02	<0.02
<u>Boring VW-1</u>													
VW-1-11	11	10/31/05	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	<0.02	<0.02	<0.02	<0.02
VW-1-18	18	10/31/05	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	<0.02	<0.02	<0.02	<0.02
<u>Boring VW-2</u>													
VW-2-11	11	10/31/05	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	<0.02	<0.02	<0.02	<0.02
VW-2-16	16	10/31/05	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5	<0.02	<0.02	<0.02	<0.02
<div> <div> <u>Explanation</u> TPHG = Total petroleum hydrocarbons as gasoline BTX = Benzene, toluene, ethylbenzene, and xylenes MTBE = Methyl tertiary butyl ether DIPE = Di-isopropyl ether ETBE = Ethyl tertiary butyl ether TAME = Tertiary amyl methyl ether 1,2-DCA=1,2-Dichloroethane TBA=Tertiary butyl alcohol mg/Kg = milligrams per kilogram </div> <div> <u>Analytical Methods</u> TPHG analyzed using EPA Method SW8015B/DHS LUFT Manual BTX, MTBE, DIPE, ETBE, TAME, and 1,2-DCA analyzed using EPA Method SW8260B </div> <div> <u>Analytical Laboratory</u> Alpha Analytical, Inc. (ELAP #2019) </div> </div>													

TABLE 2
GROUNDWATER ANALYTICAL RESULTS
KWIK SERV SERVICE STATION
2400 FRUITRIDGE ROAD
SACRAMENTO, CALIFORNIA

Sample ID	Date Collected	TPHG (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)
Well MW-4												
MW-4	11/16/05	<50	<0.50	<0.50	<0.50	<0.50	8.9	<10	<1.0	<1.0	<1.0	<1.0
Explanation TPHG = Total petroleum hydrocarbons as gasoline BTX = Benzene, toluene, ethylbenzene, and xylenes MTBE = Methyl tertiary butyl ether DIPE = Di-isopropyl ether ETBE = Ethyl tertiary butyl ether TAME = Tertiary amyl methyl ether 1,2-DCA=1,2-Dichloroethane TBA=Tertiary butyl alcohol µg/L = micrograms per liter												
Analytical Methods TPHG analyzed using EPA Method SW8015B/DHS LUFT Manual BTX, MTBE, DIPE, ETBE, TAME, and 1,2-DCA analyzed using EPA Method SW8260B												
Analytical Laboratory Alpha Analytical, Inc. (ELAP #2019)												



GENERAL NOTES:
 BASE MAP FROM U.S.G.S.
 SACRAMENTO, CA.
 7.5 MINUTE TOPOGRAPHIC
 PHOTOREVISED 1980



QUADRANGLE LOCATION



SCALE 1:24,000

STRATUS
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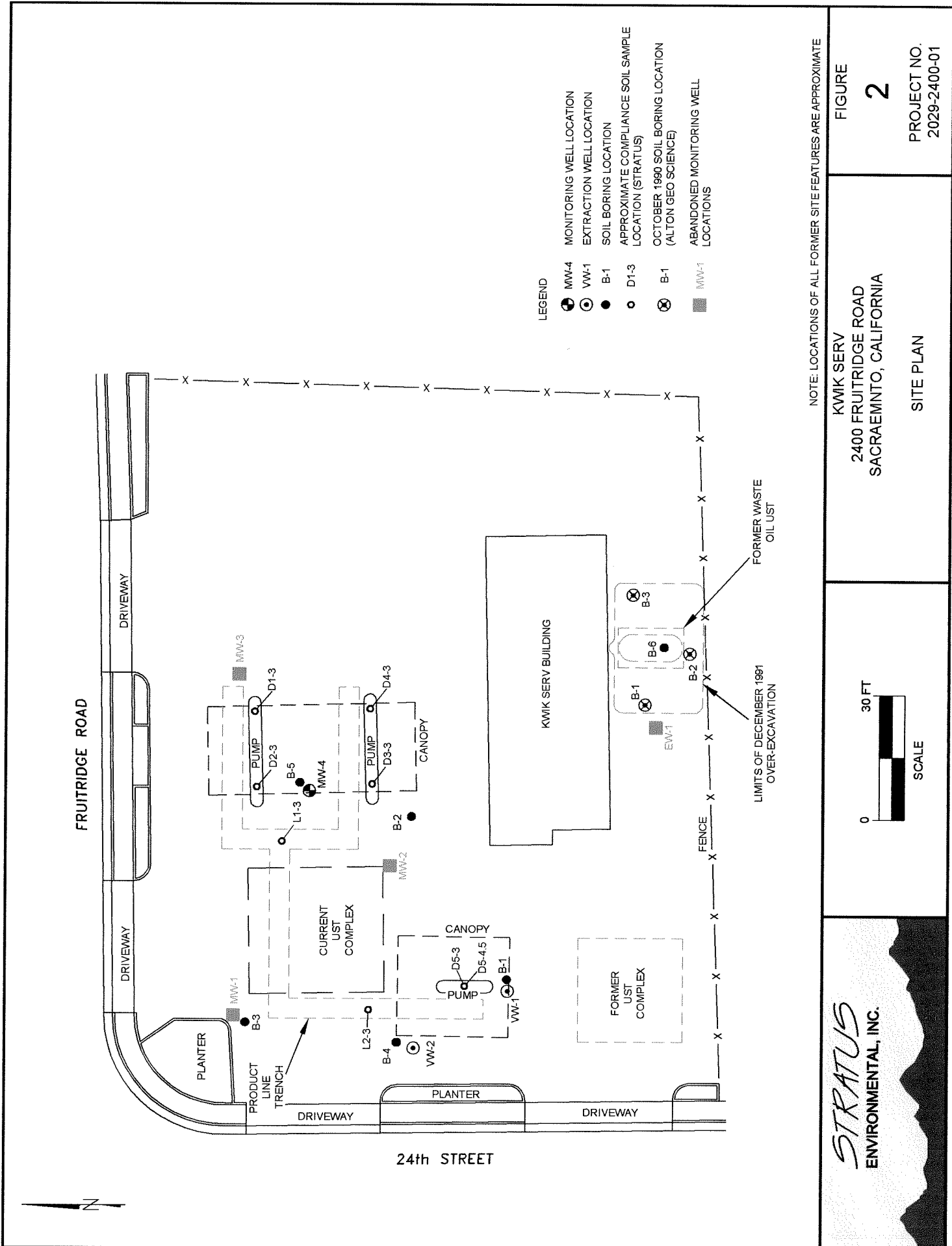
KWIK SERV
 2400 FRUITRIDGE ROAD
 SACRAMENTO, CALIFORNIA

SITE LOCATION MAP

FIGURE

1

PROJECT NO.
 2029-2400-01



APPENDIX A

FIELD PRACTICES AND PROCEDURES AND QUALITY ASSURANCE PLAN

FIELD PRACTICES AND PROCEDURES AND QUALITY ASSURANCE PLAN

General procedures used by Stratus in site assessments for drilling exploratory borings, collecting samples, installing monitoring wells, sampling monitoring wells, analytical procedures, and assessment of data are described herein. These general procedures are used to provide consistent and reproducible results. However some procedures may be modified based on site conditions. In addition, this appendix presents a quality assurance plan adopted in conducting the activities described here.

PRE-FIELD WORK ACTIVITIES

Health and Safety Plan

Field work performed by Stratus at the site is conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document which describes the hazards that may be encountered in the field and specifies protective equipment, work procedures, and emergency information. A copy of the SHSP is at the site and available for reference by appropriate parties during work at the site.

Locating Underground Utilities

Prior to commencement of any work that is to be below surface grade, the location of the excavation, boring, etc., is marked with white paint as required by law. An underground locating service such as Underground Service Alert (USA) is contacted. The locating company contacts the owners of the various utilities in the vicinity of the site to mark the locations of their underground utilities. Any invasive work is preceded by hand auguring to a minimum depth of five feet below surface grade to avoid contact with underground utilities.

FIELD METHODS AND PROCEDURES

Drilling

Soil borings will be drilled using a truck-mounted, hollow stem auger drill rig. Soil samples for logging will be obtained from auger-return materials and by advancing a modified California split-spoon sampler equipped with brass or stainless steel liners into undisturbed soil beyond the tip of the auger. Soils will be logged by a geologist according to the Unified Soil Classification System and standard geological techniques.

Soil sampling equipment will be cleaned with a detergent water solution (Liqonox or TCP), rinsed with clean water, and equipped with clean liners between sampling intervals. A consulting geologist will oversee a drilling company steam clean augers and samplers between each boring to reduce the possibility of cross contamination. Steam

cleaning effluent will be contained in 55-gallon drums and temporarily stored onsite. The disposal of the effluent will be the responsibility of ARCO.

Soil Classification

Samples will be classified onsite by the field geologist in accordance with the Unified Soil Classification System. Representative portions of the samples will be retained for further examination and for verification of the field classification. Logs of the borings indicating the depth and identification of the various strata and pertinent information will be prepared. Exploratory boring logs and well construction details will be prepared for the final written report.

Soil Sample Screening

Soil samples selected for chemical analysis will be determined from a head-space analysis using a PID or an FID. The soil will be placed in a Ziploc[®]-type resealable plastic bag and allowed to reach ambient temperature, at which time the PID probe will be inserted into the bag. The total volatile hydrocarbons present are detected by the PID and reported in parts per million by volume (ppmv).

A PID is calibrated by entering the known concentration (in ppmv) of a containerized gas (typically isobutylene) into the display function of the PID machine. The containerized gas is released through an inert (plastic) tube into the sensory receiver of the PID. The PID normalizes its volatile organic compounds (VOC) detection sensors to match the known concentration of the gas being input into the PID machine.

Soil Sample Collection

During drilling, soil samples will be collected in clean brass, two by six inch tubes. The tubes will be set in an 18-inch-long split-barrel sampler. The sampler will be conveyed to the bottom of the borehole attached to a wire-line hammer device on the drill rig. When possible, the split-barrel sampler will be driven its entire length, either hydraulically or by repeatedly pounding a 140-pound hammer using a 30-inch drop. The number of drops (blows) used to drive the sampler will be recorded on the boring log. The sampler will be extracted from the borehole, and the tubes containing the soil samples will be removed. Upon removal, the ends of the lowermost tube will be sealed with Teflon[™] sheets and plastic caps. Soil samples for chemical analysis will be labeled, placed on ice, and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation.

Label information includes a unique sample identification number, job identification number, date, and time. After labeling, all soil and water samples are placed in a Ziploc[®] type bag and placed in an ice chest cooled to approximately 4° C. Upon arriving at Stratus' office, the samples are transferred to a locked refrigerator cooled to

approximately 4° Celsius. Chemical preservation is controlled by the required analysis and is noted on the chain-of-custody form.

The number of samples collected to evaluate impact to soil is determined by the overseeing registered geologist. This information and rationale is typically presented in the work plan.

Stockpiled Drill Cuttings and Soil Sampling

Soil generated during drilling operations will be stockpiled onsite. The stockpile will be set on and covered by plastic sheeting in a manner to prevent rain water from coming in contact with the soil. Prior to collecting soil samples, Stratus personnel will calculate the approximate volume of soil in the stockpile. The stockpile will then be divided into 50 cubic yard (volume) sections, if warranted, for sampling. Soil samples will be collected at 0.5 to 2 feet below the surface of the stockpile. Four soil samples will be collected from the stockpile and composited into one sample by the laboratory prior to analysis. The soil samples will be collected in clean brass, two by six inch tubes using a hand driven sampling device. To reduce the potential for cross-contamination between samples, the sampler will be cleaned between each sampling event. Upon recovery, the sample container will be sealed at each end with Teflon™ sheeting and plastic caps to minimize the potential of volatilization and cross-contamination prior to chemical analysis. The soil sample will be labeled, placed in an ice chest cooled to 4° C, and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation.

Sample Identification and Chain-of-Custody

Sample identification and chain-of-custody procedures document sample possession from the time of collection to ultimate disposal. Each sample container submitted for analysis has a label affixed to it to identify the job number, sampler, date and time of sample collection, and a sample number unique to that sample. This information, in addition to a description of the sample, field measurements made, sampling methodology, names of onsite personnel, and any other pertinent field observations, are recorded on the borehole log or in the field records. A chain-of-custody form is used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them relinquishes the samples by signing the chain-of-custody form and noting the time.

Monitoring Well Installation

Monitoring wells will be completed by installing two or four-inch-diameter Schedule 40 polyvinyl chloride (PVC) casing. The two-inch diameter monitoring wells will be installed using 8-inch diameter hollow stem augers, and the four-inch diameter monitoring wells will be installed using 10-inch diameter hollow stem augers.

Monitoring wells will be constructed using threaded, factory-perforated and blank Schedule 40 PVC. The perforated interval consists of slotted casing, 0.01 or 0.02 inches wide by 1.5 inch long slots, with 42 slots per foot. The screened interval will allow for seasonal fluctuation in water level and for monitoring floating product. A threaded PVC cap is secured to the bottom of the casing. The well casing is thoroughly washed and/or steam cleaned, or may be purchased as pre-cleaned, prior to completion.

A filter pack of graded sand will be placed in the annular space between the PVC casing and the borehole wall. Sand will be added to the borehole through the hollow stem of the augers to provide a uniform filter pack around the casing and to stabilize the borehole. The sand pack will be placed to a maximum of 2 feet above the screens, followed by a minimum 1-foot seal consisting of bentonite pellets.

Cement grout containing 5 percent bentonite will be placed above the bentonite seal to the ground surface. A concrete traffic-rated vault box will be installed over the monitoring wells. A watertight locking cap will be installed over the top of the well casing. Monitoring well elevations will be surveyed by a state-certified land surveyor to the nearest 0.01 vertical feet relative to mean sea level (MSL). Horizontal coordinates of the wells will also be obtained at the same time.

Vapor Extraction Well Completion

The borehole diameter for a vapor extraction well is typically a minimum of four inches larger than the outside diameter of the casing.

A vapor extraction well is typically cased with threaded, factory-perforated and blank Schedule 40 PVC. The perforated interval consists of slotted casing, generally with 0.01 or 0.02 inch-wide by 1.5-inch-long slots, with 42 slots per foot. A threaded or slip PVC cap is secured to the bottom of the casing. The slip cap can be secured with stainless steel screws, friction or PVC cement if the well is not completed into ground water. Centering devices may be fastened to the casing to ensure even distribution of filter material and grout within the borehole annulus. The well casing is thoroughly washed and/or steam cleaned, or may be purchased as pre-cleaned, prior to completion.

Setting the casing inside the hollow-stem auger, sand or gravel filter pack material is poured into the annular space to fill from boring bottom to generally one foot above the perforated interval. After setting the filter pack a one to two foot thick bentonite plug is set above the filter pack to prevent grout from infiltrating into the filter pack. A regulatory approved annular filling material is used to fill the annulus from the bentonite plug to within 10 feet the surface (if the well depth and screen interval allow). The remaining nine feet of annulus is filled with either neat cement, cement with five percent (by volume) bentonite or sand-cement grout. The annular filling material is placed by a method approved by the regulatory agency overseeing the site. The remaining foot of the well is completed using a traffic-rated vault is installed around each wellhead. A traffic-rated vault it is typically set 1/2-inch above grade to minimize surface water from entering the

vault. In areas that may be plowed for snow removal the vault is set flush with the surface to prevent damage to the vault by a snow plow.

In some cases multiple strings of casing will be run in the boring. This is known as a nested, dual, or multiple completion. These types of completions are performed similar to the single completions with the exception that bentonite is placed between the screened intervals which isolates the intervals.

Equipment Cleaning

Sample bottles, caps, and septa used in sampling for volatile and semivolatile organics will be triple rinsed with high-purity deionized water. After being rinsed, sample bottles will be dried overnight at a temperature of 200°C. Sample caps and septa will be dried overnight at a temperature of 60°C. Sample bottles, caps, and septa will be protected from solvent contact between drying and actual use at the sampling site. Sampling containers will be used only once and discarded after analysis is complete.

Plastic bottles and caps used in sampling for metals will be soaked overnight in a 1 percent nitric acid solution. Next, the bottles and caps will be triple rinsed with deionized water. Finally, the bottles and caps will be air dried before being used at the site. Plastic bottles and caps will be constructed of linear polyethylene or polypropylene. Sampling containers will be used only once and discarded after analysis is complete. Glass and plastic bottles used by Stratus to collect groundwater samples are supplied by the laboratory.

Before the sampling event is started, equipment that will be placed in the well, or will come in contact with groundwater, will be disassembled and cleaned thoroughly with detergent water, and then steam cleaned with deionized water. Any parts that may absorb contaminants, such as plastic pump valves, etc., will be cleaned as described above or replaced. During field sampling, equipment surfaces that are placed in the well or contact groundwater will be steam cleaned with deionized water before the next well is purged or sampled.

Soil samples are collected in new, pre-cleaned brass liners. These sample liners are either used by themselves, or are inserted in the sampling equipment. Soil samples are not collected with or in reusable equipment.

Cone Penetrometer Tool (CPT) Testing

The CPT method consists of advancing a cone-tipped cylindrical probe (1.7 inches in diameter) into the ground while simultaneously measuring the resistance to penetration. The CPT method determines soil lithology by comparing the force (cone bearing pressure) required to advance the probe (Q_t) to the friction ratio (R_f) (R_f equals sleeve friction [F_s] divided by the probe tip load, times the penetration pore pressure [U_d]). Computer generated CPT logs will be plotted in the field, providing the field representative a graphical log of subsurface soil lithology. A CPT test data report, which

will include logs of all CPT data, graphical geologic logs, and additional information on the CPT technique, will be submitted with the final report. CPT testing will be performed in accordance with American Society of Testing and Materials (ASTM) Method D3441.

The cone testing will be performed inside of a grout collar installed at the ground surface. The grout collar will allow the CPT contractor to backfill the boring as the steel rods are retracted from the hole. Continuous grouting will prevent cross contamination of water bearing zones that can occur through an open borehole. The boring will be backfilled to surface grade. An asphalt patch will be placed over the borehole.

Direct Push Technology, Water Sampling

A well known example of direct push technology for water sampling is the Hydropunch[®]. For the purpose of this field method, the term hydropunch will be used instead of direct push technology for water sampling. Hydropunch samples will be collected by placing a disposable steel tip on the end of a two-inch diameter rod containing five feet of disposable 1-inch diameter slotted PVC casing. The sampling rods are pushed to the desired depth using the CPT truck. Depth discreet samples are obtained by retracting the rods approximately four feet, exposing the screen at the desired sampling interval. Samples are collected by lowering a bailer inside the steel rods and recovering groundwater. Groundwater is poured from the bailer into laboratory supplied glass vials. The water samples will be labeled, placed on ice, and delivered to a state-certified analytical laboratory along with the appropriate chain-of-custody documentation. The inside and outside of the two-inch diameter steel rods are steam cleaned between sampling events to prevent cross contaminating groundwater samples.

Soil Sampling

Soil samples will be collected at the CPT locations using a retractable sampler equipped with two 1.25-inch by 6-inch brass sleeves. Soil sampling is conducted by advancing the sampler to the top of the desired sampling depth. The CPT operator subsequently retracts the rods approximately 12 inches, exposing the brass sleeves in the borehole. The sampler is then driven into native soil.

Groundwater and Liquid-Phase Petroleum Hydrocarbon Depth Assessment

A water/hydrocarbon interface probe is used to assess the liquid-phase petroleum hydrocarbon (LPH) thickness, if present, and a water level indicator is used to measure the groundwater depth in monitoring wells that do not contain LPH. Depth to ground water or LPH is measured from a datum point at the top of each monitoring well casing. The datum point is typically a notch cut in the north side of the casing edge. If a water level indicator is used, the tip is subjectively analyzed for hydrocarbon sheen.

Subjective Analysis of Groundwater

Prior to purging, a water sample is collected from the monitoring well for subjective assessment. The sample is retrieved by gently lowering a clean, disposable bailer to approximately one-half the bailer length past the air/liquid interface. The bailer is then retrieved, and the sample contained within the bailer is examined for floating LPH and the appearance of a LPH sheen.

Monitoring Well Purging and Sampling

If the depth to groundwater is above the top of the screens of the monitoring well, then the wells are purged. Monitoring wells are purged using a electrical submersible pump or bailer until pH, temperature, and conductivity of the purge water has stabilized and a minimum of three well volumes of water have been removed. Wells are typically purged at the rate of 1 gallon per minute (gpm), though will not exceed 2 gpm. If three well volumes can not be removed in one half hour's time the well is allowed to recharge to 80% of the original level. After recharging, a ground water sample is then removed from each of the wells using a disposable bailer. Groundwater purged from the monitoring wells is typically transported to a holding facility in West Sacramento.

A Teflon bailer will be the only equipment used for well sampling. When samples for volatile organic analysis are being collected, the flow of groundwater from the bailer will be regulated to minimize turbulence and aeration. Glass bottles of at least 40-milliliters volume and fitted with Teflon™-lined septa will be used in sampling for volatile organics. These bottles will be filled completely to prevent air from remaining in the bottle. A positive meniscus forms when the bottle is completely full. A convex Teflon™ septum will be placed over the positive meniscus to eliminate air. After the bottle is capped, it is inverted and tapped to verify that it contains no air bubbles. The sample containers for other parameters will be filled, filtered as required, and capped.

The water sample is collected, labeled, and handled according to the Quality Assurance Plan. Water generated during the monitoring events is disposed of at approved water recycling facilities.

Quality Assurance Plan

Procedures to provide data quality have been established and documented so that conditions adverse to quality, such as deficiencies, deviations, nonconformants, defective material, services, and/or equipment, can be promptly identified and corrected.

Internal Quality Assurance Checks

Internal quality assurance procedures will be used to provide reliability of monitoring and measurement of data. Both field and laboratory quality assurance checks as listed below will be used to evaluate the reliability of sampling and analysis results. Tables 1 through 5 present data quality indicators (DQI) used by the laboratory to meet internal quality assurance procedures. Internal quality assurance procedures generally include:

Laboratory Quality Assurance

- Documentation of instrument performance checks,
- Documentation of instrument calibration,
- Documentation of the traceability of instrument standards, samples, and data, and
- Documentation of analytical and QC methodology (QC methodology includes use of spiked samples, duplicate samples, split samples, use of reference blanks, and check standards to check method accuracy and precision).

Field Quality Assurance

Stratus has developed field DQIs which are presented in Table 6. In addition to the DQIs the following internal checks will also be conducted.

- Documentation of sample preservation and transportation, and
- Documentation of field instrument calibration and irregularities in performance.

General Sample Collection and Handling Procedures

Proper collection and handling are essential to ensure the quality of a sample. Each sample is collected in a suitable container, preserved correctly for the intended analysis, and stored prior to analysis for no longer than the maximum allowable holding time. Details on the procedures for collection and handling of samples used on this project can be found in this section and in the attached DQI tables.

Soil and Water Sample Labeling and Preservation

Label information includes a unique sample identification number, job identification number, date, and time. After labeling, all soil and water samples are placed in a Ziploc[®] type bag and placed in an ice chest cooled to approximately 4° C. Upon arriving at Stratus' office, the samples are transferred to a locked refrigerator cooled to approximately 4° C. Chemical preservation is controlled by the required analysis and is

noted on the chain-of-custody form. Trip blanks supplied by the laboratory accompany the groundwater sample containers and groundwater samples.

Upon recovery, the sample container is sealed to minimize the potential of volatilization and cross-contamination prior to chemical analysis. Soil sampling tubes are typically closed at each end with Teflon™ sheeting and plastic caps. The sample is then placed in a Ziploc® type bag and sealed. The sample is labeled and refrigerated at approximately 4° Celsius for delivery, under strict chain-of-custody, to the analytical laboratory.

Chain of Custody

The chain-of-custody form is used to record possession of the sample from time of collection to its arrival at the laboratory. When the samples are shipped, the person in custody of them relinquishes the samples by signing the chain-of-custody form and noting the time. The sample-control officer at the laboratory verifies sample integrity and confirms that the samples are collected in the proper containers, preserved correctly, and contain adequate volumes for analysis. These conditions are noted on a Laboratory Sample Receipt Checklist (see attached) which will be included in the laboratory report.

If these conditions are met, each sample is assigned a unique log number for identification throughout analysis and reporting. The log number is recorded on the chain-of-custody form and in the legally-required log book maintained by the laboratory. The sample description, date received, client's name, and other relevant information is also recorded.

Analytical Methods

Soil and groundwater samples collected during exploratory site investigation activities and development and sampling of monitoring wells, will be analyzed under a standard 10-day turnaround time. Samples are analyzed using analytical methods outlined in EPA Manual SW 846 and approved by the California Regional Water Quality Control Board-Central Valley Region in the Leaking Underground Fuel Tanks (LUFT) manual and appendices.

Samples collected during the investigation of petroleum hydrocarbon impacted sites are typically analyzed for total petroleum hydrocarbons as gasoline ([C₂-C₁₂ range] TPHG) by U.S. EPA Method 8015. Benzene, Toluene, ethylbenzene, and total xylenes (BTEX) are analyzed using U.S. EPA Method 8020/8021.

The attached tables 1 through 5 present the state-certified laboratory's calibration and quality assurance procedures for the above mentioned analytical methods. Internal laboratory quality assurance checks will be the responsibility of the contract laboratories. Data and reports submitted by field personnel and the contract laboratory will be reviewed and maintained in the project files.

Data Review and Verification

Data quality indicator parameters will be evaluated by the contract state-certified laboratory against the frequency and acceptance criteria described in the Lab DQI Tables. Data that are out of compliance with the laboratory criteria will be flagged in the laboratory analytical report and will be identified in the report summary table. Stratus will evaluate the field procedures against the frequency and acceptance criteria identified in the field DQI Table. The overseeing registered professional will review field documentation (boring logs, sampling sheets, Chain-of-Custody documents, lab sample receipt forms, etc.) and identify relevant issues/problems that affect data and overall applicability.

DATA QUALITY INDICATORS FOR TOTAL PETROLEUM HYDROCARBONS (TPH) and VOLATILE ORGANIC COMPOUNDS

Method 8015B, Method 8021A, Method 8260

Table 1. Summary of Required Quantitation Limits, Holding Times, and Preservation for Total Petroleum Hydrocarbons (TPH) as Gasoline and Diesel, and Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry

Analytical Parameter	Technical Holding Times	Preservation
Total Petroleum Hydrocarbons (TPH) as Gasoline in Water Samples	14 days from collection	HCl or H ₂ SO ₄ to pH<2; Cool to 4°C ±2°C
TPH as Gasoline in Soil Samples	14 days from collection	Cool to 4°C ±2°C; sealed zero headspace containers
TPH as Diesel in Water Samples	<u>Extraction</u> : 14 days from collection; <u>Analysis</u> : 40 days from extraction	HCl or H ₂ SO ₄ to pH<2; Cool to 4°C ±2°C
TPH as Diesel in Soil Samples	<u>Extraction</u> : 14 days from collection; <u>Analysis</u> : 40 days from extraction	Cool to 4°C ±2°C
Volatile Organic Compounds (VOCs) in Water	14 days from collection	HCl to pH <2; Cool to 4°C ±2°C
VOCs in Soil	14 days from collection	Cool to 4°C ±2°C; sealed zero headspace containers

Sample Containers:

Water: 3 x 40mL VOA vials with Teflon-lined septum caps

Soil: 1 x Brass Sleeve

Data Calculations and Reporting Units:

Report water sample results in concentration units of micrograms per liter (µg/L). Report soil sample results in micrograms per kilogram (µg/kg).

For rounding results, adhere to the following rules:

- a) If the number following those to be retained is less than 5, round down;
- b) If the number following those to be retained is greater than 5, round up; or
- c) If the number following the last digit to be retained is equal to 5, round down if the digit is even, or round up if the digit is odd.

8015.DQI

Table 2. Target Compound List and Required Quantitation Limits (RQL) for Method 8015B

COMPOUND	RQL Water µg/L	RQL Soil µg/kg
Gasoline	50	1000
Diesel	50	1000

Table 3. Summary of Calibration Internal Quality Control Procedures for SW-846 Method 8015B

QC Element	Frequency	Acceptance Criteria	Corrective Action
Method Blank (MB)	Gasoline: One per batch (1 per 20 samples minimum) Diesel: One per batch (1 per 20 samples minimum)	< RQL for each compound	Gasoline: Perform maintenance as needed, reanalyze blank. If after re-analysis, blank > RQL, STOP. Determine source and correct. Or if blank exceeds the RQL but (1) the blank value is 10x less than sample value or (2) samples are ND, data is reported. Diesel: Perform maintenance as needed, reanalyze blank. If blank exceeds the RQL but (1) the blank value is 10x less than sample value or (2) samples are ND, data is reported If blank exceeds the RL and samples have hits, which are not >10x blank value, re-extract and reanalyze.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	One MS/MSD set per batch (1 MS/MSD set per 20 samples minimum)	TPHg: 60-140% of expected value TPHd: 50-150% of expected value	If LCS is within acceptance limits, report with qualifier
Surrogate Spike	Every sample and MB at midpoint of calibration range	TPHg: 60-140% of expected value TPHd: 50-150% of expected value	Re-extract and /or re-analyze. If still out, report with qualifier.
Laboratory Control Sample (LCS)	Gasoline: One each 12-hour period; Diesel: One per batch	TPHg: 70-130% of expected value TPHd: 60-140% of expected value	Re-analyze once. Re-extract and/or re-analyze all associated samples

8260.DQI

Table 4. Target Compound List and Required Quantitation Limits (RQL) for Method 8260B

Analyte	RQL µg/L	RQL µg/Kg
Benzene	0.5	5.0
Toluene	0.5	5.0
Ethylbenzene	0.5	5.0
Total Xylenes	0.5	5.0
Fuel Oxygenates:		
Methyl tertiary butyl ether	0.5	5.0
Ethyl tertiary butyl ether	1.0	5.0
Di-isopropyl ether	1.0	5.0
Tertiary amyl methyl ether	1.0	5.0
1,2 dichloroethane	0.5	5.0
tert-butyl alcohol	5.0	25.0

Table 5. Summary of Internal Quality Control Procedures for Method 8260

QC Element	Frequency	Acceptance Criteria	Corrective Action
Method Blank (MB)	One per batch (1 per 20 samples minimum)	< RQL for each compound	Perform maintenance as needed, reanalyze blank. If after re-analysis, blank > RQL, STOP. Determine source and correct. Or if blank exceeds the RQL but (1) the blank value is 10x less than sample value or (2) samples are ND, data is reported.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	One MS/MSD set per batch (1 MS/MSD set per 20 samples minimum)	<u>Water Sample:</u> 60-140% of expected value <u>Soil Sample:</u> 60-140% of expected value ≤25% RPD between MS and MSD	If LCS is within the acceptance limits, report data with a qualifier.
Surrogate Spikes	Every sample, standard and method blank	<u>Water Sample:</u> 70-130% of expected value <u>Soil Sample:</u> 60-140% of expected value	Re-prepare and /or re-analyze samples once. If still out, report results with a qualifier
Laboratory Control Sample (LCS)	One per batch	<u>Water Sample:</u> 70-130% of expected value <u>Soil Sample:</u> 70-130% of expected value	Re-analyze once. If still out, perform maintenance if required and re-calibrate. Re-prepare and re-analyze all associated samples.

Alpha Analytical, Inc.

Phone : (775) 355-1044 FAX : (775) 355-0406

Sample Receipt Checklist

Date Report is due to Client : 2/5/02

Date of Notice : 2/7/02 2:43:18

Please take note of any Non-Compliant check marks. If we receive no response concerning these items within 24 hours of the date of this notice, all of the samples will be analyzed as requested.

Client Name: Client

Project ID : Sample Reports

Project Manager : John Smith

Client's Phone : (123) 456-7890

Client's FAX : (098) 765-4321

Work Order Number : TST99999999

Date Received : 2/7/02 2:42:03

Received by:

Chain of Custody (COC) Information

Carrier name: Client

Chain of custody present ?	Yes	No	
Custody seals intact on shipping container/cooler ?	Yes	No	Not Present
Custody seals intact on sample bottles ?	Yes	No	Not Present
Chain of custody signed when relinquished and received ?	Yes	No	
Chain of custody agrees with sample labels ?	Yes	Non-Compliant	
Internal Chain of Custody (COC) requested ?	Yes	No	
Sub Contract Lab Used :	None	SEM	Other (see comments)

Sample Receipt Information

Shipping container/cooler in good condition?	Yes	No	Not Present
Samples in proper container/bottle?	Yes	Non-Compliant	
Sample containers intact?	Yes	No	
Sufficient sample volume for indicated test?	Yes	No	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	Non-Compliant	Cooler Temperature
Container/Temp Blank temperature in compliance (0-6°C)?	Yes	Non-Compliant	4 °C
Water - VOA vials have zero headspace?	Yes	Non-Compliant	No VOA vials submitted
TOC Water - pH acceptable upon receipt ?	Yes	No	N/A
TOC Samples should have a pH<2 (H2SO4)			

Analytical Requirement Information

Are non-Standard or Modified methods requested ?	Yes	No	
Are there client specific Project requirements ?	Yes	No	If YES : see the Chain of Custody (COC)

Comments :

**DATA QUALITY INDICATORS
FIELD PROCEDURES AND CONDITIONS**

Table 6 Summary of Field Data Quality Indicators

QC Element	Frequency	Acceptance Criteria	Corrective Action
Field Duplicate	One per 20 or more aqueous samples; minimum of 1 sample per soil sampling event.	<u>Water Sample</u> : ≤30% RPD ^a <u>Soil Sample</u> : ≤50% RPD	<u>Water Samples</u> : Case narrative of variability. Collect additional samples during next sampling event. <u>Soil Samples</u> : Provide a case narrative for variability.
Field Blank (FB)	One per 20 or more aqueous samples.	<u>Water</u> : < RL for each compound <u>Soil</u> : Not applicable	Investigate the source of contamination and document. Correct sampling/handling protocols. Collect a trip blank for analysis during next groundwater sampling event.
Trip Blank (TB)	To be determined as necessary based in analytical results of field blanks	<u>Water</u> : < RL for each compound <u>Soil</u> : Not applicable	Investigate the source of contamination and document. Correct sampling/handling protocols. Collect bottle blank during next sampling event.
Bottle Blank (BB)	One per lot of sample bottles. Analyze if contamination is detected in TB.	<u>Water</u> : < RL for each compound <u>Soil</u> : Not applicable	Investigate the source of contamination and document. Correct sampling/handling protocols. Resample if associated data verification action is not acceptable for affected samples.
Review of field notes/boring logs, chain of custody documentation, and laboratory sample receipt documentation	NA	<u>Water</u> : Professional Judgment <u>Soil</u> : Professional Judgment	Investigate, document, and correct sampling/handling protocols, as appropriate. Resample if associated data verification action is not acceptable for affected samples.

^a $RPD = 100 \times \frac{x_1 - x_2}{(x_1 + x_2)/2}$

APPENDIX B

BORING LOGS, WELL DETAILS, DWR WELL COMPLETION FORMS, AND DRILLING PERMITS

MAJOR DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE GRAINED SOILS MORE THAN 50% RETAINED ON NO.200 SIEVE	GRAVEL MORE THAN 50% OF COARSE FRACTION RETAINED ON NO.4 SIEVE	CLEAN GRAVEL	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
			GP	POORLY-GRADED GRAVEL
		GRAVEL WITH FINES	GM	SILTY GRAVEL
			GC	CLAYEY GRAVEL
	SAND MORE THAN 50% OF COARSE FRACTION PASSES NO.4 SIEVE	CLEAN SAND	SW	WELL-GRADED SAND, FINE TO COARSE SAND
			SP	POORLY-GRADED SAND
		SAND WITH FINES	SM	SILTY SAND
			SC	CLAYEY SAND
FINE GRAINED SOILS MORE THAN 50% PASSES NO.200 SIEVE	SILT AND CLAY LIQUID LIMIT LESS THAN 50	INORGANIC	ML	SILT
			CL	CLAY
		ORGANIC	OL	ORGANIC SILT, ORGANIC CLAY
	SILT AND CLAY LIQUID LIMIT 50 OR MORE	INORGANIC	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
			CH	CLAY OF HIGH PLASTICITY, FAT CLAY
		ORGANIC	OH	ORGANIC CLAY, ORGANIC SILT
			HIGHLY ORGANIC SOILS	

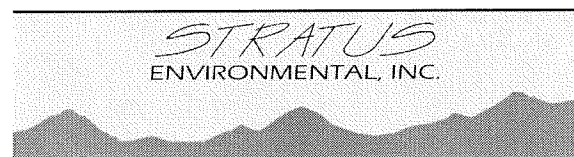
Ref: Unified Soil Classification System; from American Society for Testing and Materials, 1985

SOIL BORING LOG

Boring No. MW-4Sheet 1 of 2

Client	<u>KWIK SERV</u>	Date	<u>10/31/2005</u>
Address	<u>2400 Fruitridge Rd.</u>	Drilling Company	<u>Cascade Drilling, Inc.</u> rig type: <u>CME 75 L.A.</u>
	<u>Sacramento, CA</u>	Drilling Foreman	<u>Gerald</u>
Project No.	<u>2029-2400-1</u>	Method	<u>HSA</u> hole diam.: <u>8"</u>
Logged By:	<u>Justin Crose</u>		
Well Pack	<u>sand: 18 ft. to 40 ft.</u>	Well Construction	<u>casing: PVC</u> screen: <u>20 to 40 ft. bgs</u>
	<u>bent.: 15 ft. to 18 ft.</u>		<u>casing diam.: 2"</u> screen slot: <u>0.02"</u>
	<u>grout: 1 ft. to 15 ft.</u>	Depth to GW:	<u>▽ First encountered groundwater</u> <u>30 ft. bgs</u>

Sample		Blow	Sample		Well Constru ct.	Depth Scale	LITHO COLUMN	Descriptions of Materials and Conditions	PID (PPM)
Type	No.	Count	Time	Recov.					
						— 1	ML	Concrete	
						— 2		SILT, dark yellowish brown 10YR 4/6, 5% fine sand, dry, hard	
						— 3			
						— 4			
						— 5			
		50(2)	6:06	15		— 6	ML	SILT, dark yellowish brown 10YR 4/6, 5% fine sand, dry, hard	0
						— 7			
						— 8			
						— 9			
						— 10			
S	MW-4-11	19 23 45	6:10	80		— 11	ML	SILT, dark yellowish brown 10YR 4/4, 10% very fine sand, dry, hard	0
						— 12			
						— 13			
						— 14			
						— 15			
S	MW-4-16	30 50(6)	6:16	70		— 16	ML	SILT, dark yellowish brown 10YR 4/4, trace very fine sand, dry, hard	0
						— 17			
						— 18			
						— 19			
						— 20			

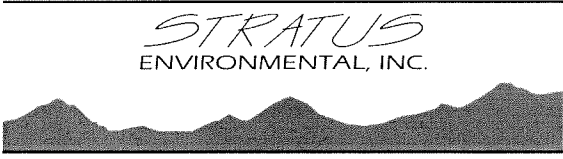


SOIL BORING LOG

Boring No. MW-4Sheet 2 of 2

Client KWIK SERV
 Address 2400 Fruitridge Rd.
Sacramento, CA
 Project No. 2029-2400-1
 Logged By: Justin Crose

Date 8/17/2004
 Drilling Company Cascade Drilling, Inc. rig type: CME 75 L.A.
 Drilling Foreman Gerald
 Method HSA hole diam.: 8"

Sample		Blow	Sample		Well Construct	Depth Scale	LITHO COLUMN	Descriptions of Materials and Conditions	PID (PPM)
Type	No.	Count	Time	Recov.					
S	MW-4-21		6:42	80	▽	2 1	ML	SILT, dark yellowish brown 10YR 4/4, trace very fine sand, moist, hard	0
						2 2			
						2 3			
						2 4			
						2 5			
S	MW-4-26	16 50(5)	6:37	60		2 6	SM/ML	SILTY SAND to SANDY SILT, dark yellowish brown 10YR, 50-60% very fine sand, 40-50% silt, moist, hard	0
						2 7			
						2 8			
						2 9			
						3 0			
S	MW-4-31	8 17 37	6:42	70	▽	3 1	SM	SILTY SAND, dark brown 10YR 3/3, 80-85% fine sand, 15-20% silty fines, wet, dense	0
						3 2			
						3 3			
						3 4			
						3 5			
						3 6			
						3 7			
						3 8			
						3 9			
						4 0			
S	MW-4-41	6 50(5)	6:47	35		4 1	SM	SILTY SAND, dark brown 10YR 3/3, 80-85% fine sand, 15-20% silty fines, wet, dense	
								Comments: Drilled to 40 feet bgs, sampled to 41 feet bgs.	
									

SOIL BORING LOG

Boring No. VW-1

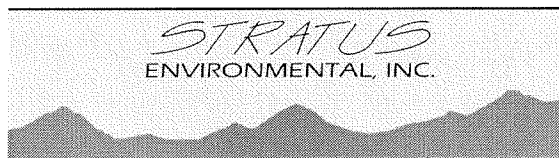
Sheet 1 of 1

Client	<u>KWIK SERV</u>	Date	<u>10/31/2005</u>
Address	<u>2400 Fruitridge Rd.</u>	Drilling Company	<u>Cascade Drilling, Inc.</u> rig type: <u>CME 75 L.A.</u>
	<u>Sacramento, CA</u>	Drilling Foreman	<u>Gerald</u>
Project No.	<u>2029-2400-1</u>	Method	<u>HSA</u> hole diam.: <u>8"</u>
Logged By:	<u>Justin Crose</u>		

Well Pack	<u>sand: 2.5 ft. to 18 ft.</u>	Well Construction	<u>casing: PVC</u>	<u>screen: 3 to 18 ft. bgs</u>
	<u>bent.: 1.5 ft. to 2.5 ft.</u>		<u>casing diam.: 2"</u>	<u>screen slot: 0.03"</u>
	<u>grout: 1 ft. to 1.5 ft.</u>			

Sample		Blow	Sample		Well Constru ct.	Depth Scale	LITHO COLUMN	Descriptions of Materials and Conditions	PID (PPM)
Type	No.	Count	Time	Recov.					
						1	ML	Concrete	
						2		SILT, dark yellowish brown 10YR 4/6, 5% fine sand, dry, hard	
						3			
						4			
						5			
		50(3)	8:15	20		6	ML	SILT, dark yellowish brown 10YR 4/6, 5% fine sand, dry, hard	0
						7			
						8			
						9			
						10			
S	VW-1-11	22 26 40	8:22	90		11	ML	SILT, dark yellowish brown 10YR 4/6, 15% very fine sand, dry, hard	0
						12			
						13			
						14			
						15			
S	VW-1-16	20 25 30	8:28	100		16	ML	SILT, yellowish brown 10YR 5/4 to 5/6, trace very fine sand, trace CaCO ₃ , dry, hard	0
						17			
						18	ML		
S	VW-1-18	20 50(4)		35		19		SILT, yellowish brown 10YR 5/4 to 5/6, trace very fine sand, dry, hard	0
						20			

Comments: Drilled to 18 feet bgs, sampled to 19 feet bgs.



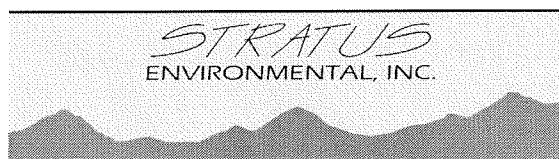
SOIL BORING LOG

Boring No. VW-2Sheet 1 of 1

Client	<u>KWIK SERV</u>	Date	<u>10/31/2004</u>
Address	<u>2400 Fruitridge Rd.</u>	Drilling Company	<u>Cascade Drilling, Inc.</u> rig type: <u>CME 75 L.A.</u>
	<u>Sacramento, CA</u>	Drilling Foreman	<u>Gerald</u>
Project No.	<u>2029-2400-1</u>	Method	<u>HSA</u> hole diam.: <u>8"</u>
Logged By:	<u>Justin Crose</u>		
Well Pack	<u>sand: 2.5 ft. to 18 ft.</u>	Well Construction	<u>casing: PVC</u> screen: <u>3 to 18 ft. bgs</u>
	<u>bent.: 1.5 ft. to 2.5 ft.</u>		<u>casing diam.: 2"</u> screen slot: <u>0.03"</u>
	<u>grout: 1 ft. to 1.5 ft.</u>		

Sample		Blow	Sample		Well Constru ct.	Depth Scale	LITHO COLUMN	Descriptions of Materials and Conditions	PID (PPM)
Type	No.	Count	Time	Recov.					
						1	ML	Asphalt	
						2		SILT, dark yellowish brown 10YR, 5% very fine sand, dry, hard	
						3			
						4			
						5			
		50(6)	9:35	30		6	ML	SILT, dark yellowish brown 10YR, 5% very fine sand, trace CaCO3, dry, hard	0
						7			
						8			
						9			
						10			
S	VW-2-11	6 8 9	9:43	80		11	ML	SILT, dark yellowish brown 10YR, 5% very fine sand, moist, stiff (unusually low blow count for unit, might be sluff)	0
						12			
						13			
						14			
						15			
S	VW-2-16	28 30 35	9:53	70		16	ML	SILT, dark yellowish brown 10YR, 5% very fine sand, trace black MnO2, dry to moist, hard	0
						17			
						18			
						19			
						20			

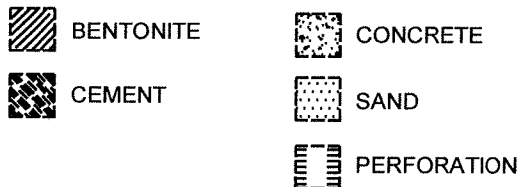
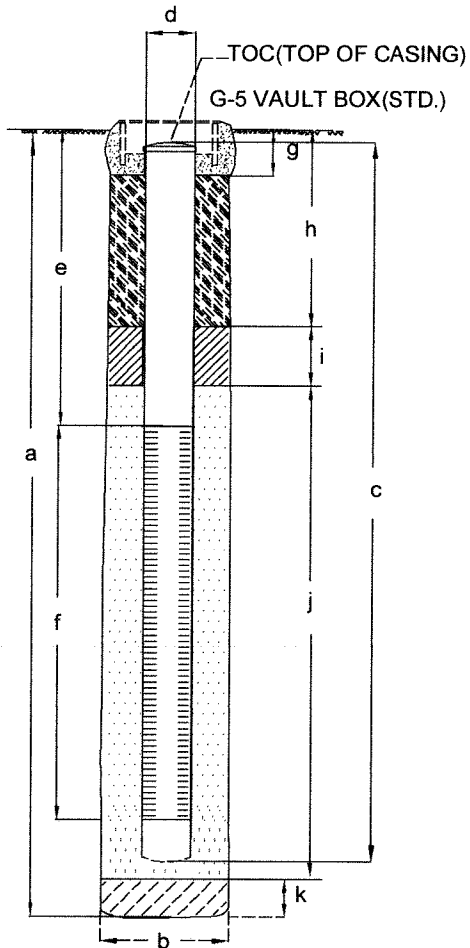
Comments: Drilled to 18 feet bgs. Sampling attempt below 18 feet bgs failed.



WELL DETAILS

PROJECT NUMBER: 2029-2400-01
PROJECT NAME: Kwik Serv
LOCATION: 2400 Fruitridge Road, Sacramento, California
WELL PERMIT NO.: 142866

BORING/WELL NO.: MW-4
TOP OF CASING ELEV.: 23.97'
GROUND SURFACE ELEV.: 24.60'
DATUM: NAVD 88
INSTALLATION DATE: October 31, 2005



NOT TO SCALE

EXPLORATORY BORING

a. TOTAL DEPTH 40 ft.
b. DIAMETER 8 in.
DRILLING METHOD Hollow Stem Auger

WELL CONSTRUCTION

c. TOTAL CASING LENGTH 40 ft.
MATERIAL Schedule 40 PVC
d. DIAMETER 2 in.
e. DEPTH TO TOP PERFORATIONS 20 ft.
f. PERFORATED
INTERVAL FROM 20 TO 40 ft.
PERFORATION TYPE Slotted Screen
PERFORATION SIZE 0.02 in.
g. SURFACE SEAL 0 to 1.0 ft.
SEAL MATERIAL Concrete
h. BACKFILL 1.0 to 15 ft.
BACKFILL MATERIAL Neat Cement
i. SEAL 15 to 18 ft.
SEAL MATERIAL Bentonite
j. FILTER PACK 18 to 40 ft.
FILTER PACK MATERIAL #3 Sand
k. BOTTOM SEAL
SEAL MATERIAL N/A

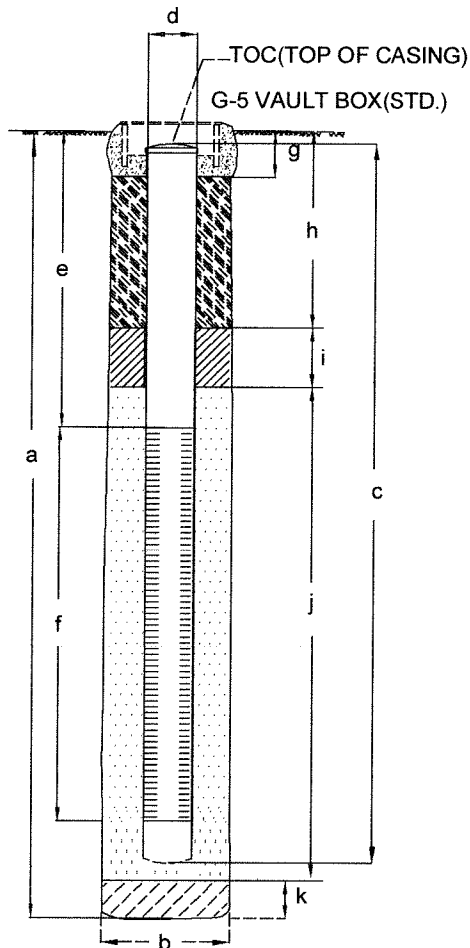
PREPARED BY _____ DATE _____

REVIEWED BY _____ DATE _____

WELL DETAILS

PROJECT NUMBER: 2029-2400-01
PROJECT NAME: Kwik Serv
LOCATION: 2400 Fruitridge Road, Sacramento, California
WELL PERMIT NO.: 142746

BORING/WELL NO.: VW-1
TOP OF CASING ELEV.: 23.82'
GROUND SURFACE ELEV.: 24.20'
DATUM: NAVD 88
INSTALLATION DATE: October 31, 2005



BENTONITE



CONCRETE



CEMENT



SAND



PERFORATION

NOT TO SCALE

EXPLORATORY BORING

a. TOTAL DEPTH 18 ft.

b. DIAMETER 8 in.

DRILLING METHOD Hollow Stem Auger

WELL CONSTRUCTION

c. TOTAL CASING LENGTH 18 ft.

MATERIAL Schedule 40 PVC

d. DIAMETER 2 in.

e. DEPTH TO TOP PERFORATIONS 3 ft.

f. PERFORATED

INTERVAL FROM 3 TO 18 ft.

PERFORATION TYPE Slotted Screen

PERFORATION SIZE 0.03 in.

g. SURFACE SEAL 0 to 1.0 ft.

SEAL MATERIAL Concrete

h. BACKFILL 1.0 to 1.5 ft.

BACKFILL MATERIAL Neat Cement

i. SEAL 1.5 to 2.5 ft.

SEAL MATERIAL Bentonite

j. FILTER PACK 2.5 to 18 ft.

FILTER PACK MATERIAL Med. Aquarium Sand

k. BOTTOM SEAL

SEAL MATERIAL N/A

PREPARED BY _____ DATE _____

REVIEWED BY _____ DATE _____

WELL DETAILS

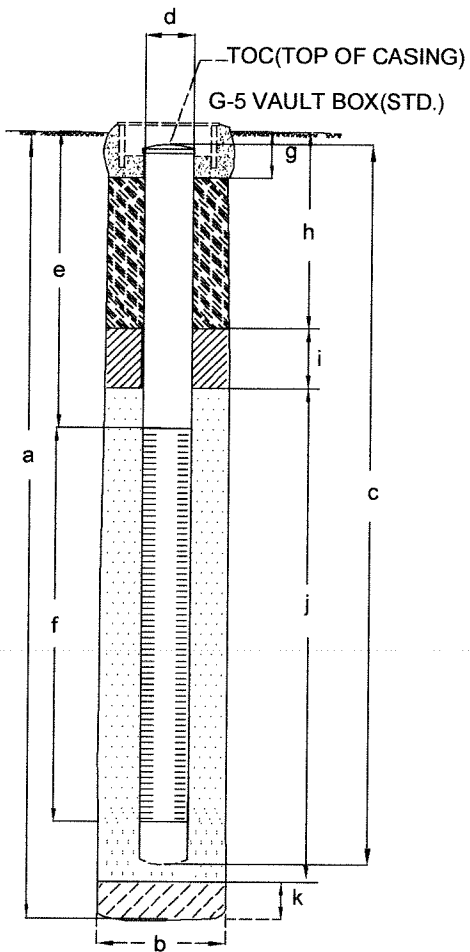
PROJECT NUMBER: 2029-2400-01






PROJECT NAME: Kwik Serv

LOCATION: 2400 Fruitridge Road, Sacramento, California

WELL PERMIT NO.: 142747

BORING/WELL NO.: VW-2
TOP OF CASING ELEV.: 23.53'
GROUND SURFACE ELEV.: 24.10'
DATUM: NAVD 88
INSTALLATION DATE: October 31, 2005



 BENTONITE
  CONCRETE
 CEMENT
  SAND
 PERFORATION

NOT TO SCALE

EXPLORATORY BORING

a. TOTAL DEPTH 18 ft.

b. DIAMETER 8 in.

DRILLING METHOD Hollow Stem Auger

WELL CONSTRUCTION

c. TOTAL CASING LENGTH 18 ft.

MATERIAL Schedule 40 PVC

d. DIAMETER _____ 2 in.

e. DEPTH TO TOP PERFORATIONS 3 ft.

f. PERFORATED

INTERVAL FROM 3 TO 18 ft.

PERFORATION TYPE Slotted Screen

PERFORATION SIZE 0.03 in.

g. SURFACE SEAL 0 to 1.0 ft.

SEAL MATERIAL Concrete

1.0 to 1.5

ft.

BACKFILL MATERIAL Neat Cement

i. SEAL 1.5 to 2.5 ft.

SEAL MATERIAL Bentonite

j. FILTER PACK 2.5 to 18 ft.

FILTER PACK MATERIAL Med Aquarium Sand

k. BOTTOM SEAL _____

SEAL MATERIAL N/A

PREPARED BY _____ DATE _____

REVIEWED BY _____ DATE _____

Page 1 of 1

Owner's Well No.

Date Work Began.

Local Permit Agency

Permit No.

STATE OF CALIFORNIA
WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. 0964073

DWR USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE

LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG				WELL OWNER _____			
ORIENTATION (\angle) _____ VERTICAL _____ HORIZONTAL _____ ANGLE _____ (SPECIFY)		DRILLING METHOD <u>hollow stem auger</u>		Name <u>Bal Son</u> Mailing Address <u>2400 Fruitridge Rd.</u> <u>Sacramento</u> CA ZIP _____			
DEPTH FROM SURFACE Ft. to Ft.		DESCRIPTION <u>SILT</u> <i>Describe material, grain size, color, etc.</i>		CITY _____ STATE _____ ZIP _____			
				Address <u>2400 Fruitridge Rd.</u> City <u>Sacramento</u> County <u>Sacramento</u>			
				APN Book _____ Page _____ Parcel _____			
				Township _____ Range _____ Section _____			
				Lat _____ DEG. MIN. SEC. N Long _____ DEG. MIN. SEC. W			
				LOCATION SKETCH NORTH _____ SOUTH _____			
				ACTIVITY (\angle) <input checked="" type="checkbox"/> NEW WELL MODIFICATION/REPAIR ____ Deepen ____ Other (Specify) _____ ____ DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")			
				USES (\angle) WATER SUPPLY ____ Domestic ____ Public ____ Irrigation ____ Industrial MONITORING _____ TEST WELL _____ CATHODIC PROTECTION _____ HEAT EXCHANGE _____ DIRECT PUSH _____ INJECTION _____ VAPOR EXTRACTION <input checked="" type="checkbox"/> SPARGING _____ REMEDIATION _____ OTHER (SPECIFY) _____			
				Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.			
				WATER LEVEL & YIELD OF COMPLETED WELL			
				DEPTH TO FIRST WATER _____ (Ft.) BELOW SURFACE			
				DEPTH OF STATIC WATER LEVEL _____ (Ft.) & DATE MEASURED _____			
				ESTIMATED YIELD * _____ (GPM) & TEST TYPE _____			
				TEST LENGTH _____ (Hrs.) TOTAL DRAWDOWN _____ (Ft.)			
				* May not be representative of a well's long-term yield.			
TOTAL DEPTH OF BORING <u>18</u> (Feet)		TOTAL DEPTH OF COMPLETED WELL <u>18</u> (Feet)					

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING (S)							
				TYPE (<)				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
				BLANK	SCREEN	CON-DUCTOR	FILL PIPE				
Ft.	to	Ft.									
0	3		8	✓			PVC sch. 40	2			
3	18		8	✓			PVC sch. 40	2		0.03	

DEPTH FROM SURFACE			ANNULAR MATERIAL			
			TYPE			
			CE- MENT (<)	BEN- TONITE (<)	FILL (<)	FILTER PACK (TYPE/SIZE)
Ft.	to	Ft.				
0	1.5		✓			
1.5	2.5			✓		
2.5	18				✓	medium aquarium sand

ATTACHMENTS (2)

 Geologic Log

 Well Construction Diagram

 Geophysical Log(s)

 ✓ Soil/Water Chemical Analyses

 ✓ Other Site plan

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT			
I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.			
NAME	Stratus Environmental, Inc.		
(PERSON, FIRM, OR CORPORATION)	(TYPED OR PRINTED)		
3330	Cameron Park Dr.	Suite 550	Cameron Park CA 95682
ADDRESS	CITY	STATE	ZIP
Signed	Scott Bottoms for Cascade Drilling Inc.		
C-57 LICENSED WATER WELL CONTRACTOR	DATE SIGNED	12-13-05 717510	
		C-57 LICENSE NUMBER	

SEP 26 2005

WP0027553

CALL FOR INSPECTIONS
EH (916) 875-8422
HAZMAT(916) 875-8464

WELL APPLICATION AND PERMIT FORM

ENVIRONMENTAL MANAGEMENT DEPARTMENT
8475 JACKSON ROAD, SUITE 230/240
SACRAMENTO, CA 95826-3904

FOR OFFICE USE ONLY

☐ DISAPPROVED ☒ APPROVED

☐ APPROVED WITH CONDITIONS (See attachment)

By: SM

Date: 9/22/05

Date Received: 9-8-05

Date Issued: _____

Total Fee: \$203.00

Permit Number: 142866

SR Number: 16772

Receipt Number: W1137817

Site Number: _____

Date: _____

Date: _____

Grout Inspection By: _____

Date: _____

GPS #: _____

Final Inspection By: _____

Actual Well Depth: _____

Actual Grout Depth: _____

Depth to first Water: _____

Well Destruction Inspection By: _____

Comments: _____

Inspecting Division: ☐ ENVIRONMENTAL HEALTH

☒ HAZARDOUS MATERIALS

SITE ADDRESS: 2400 Fruitridge Rd

City: Sacramento

Zip: 95822

Nearest Major Cross Street: 24th St.

Parcel Number: _____

Property Owner: Barbara Gormley Morgan Trust, et al

Phone Number: _____

Well Contractor: Cascade Drilling

License Number: 117510

Type: C-57

Contractor Address: 3632 Orme Circle

Expiration Date: 1-31-06

City: Rancho Cordova

Zip: 95742

Phone: 638-1169

Well/Boring Identification Number: MW-4

WORK TO BE PERFORMED: (License Required)

☒ Construct Well (C-57)

☐ Repair/Modify Well or Pump (C-57, C-61, Class A)

☐ Test Hole Soil Boring With Destruction (C-57)

☐ Install New Pump (C-57)

☐ Destroy Well (C-57)

☐ Inactivation Permit, (Owner Only)

Comments: _____

☐ Other (state): _____

DISTANCE TO NEAREST:

Leach Field: _____

Leach Pit: _____

Septic Tank: _____

Sewer Line: _____

Stream, Ditch, Drainage Canal: _____

100 Year Flood Plain: _____

INTENDED USE:

☐ Domestic/Private

☐ Public Water System

☐ Irrigation

☐ Cathodic Protection

☒ Monitoring

☐ Extraction/Recovery

☐ Heat Exchanger

☐ Other (state)

Comments: _____

DRILLING METHOD:

☒ Auger

☐ Cable Tool

☐ Driven

☐ Rotary

☐ Other (state)

CONSTRUCTION SPECIFICATIONS:

BOREHOLE: Diameter: 8-inch Depth: 40'

CASING: Diameter: 2-inch Depth: 40'

If Steel, Gauge: _____

If Plastic, Type: PVC-Schedule 40

(MUST MEET ASTM F-480)

If Conductor, Diameter: _____

Depth: _____

GROUT: Diameter: 8" Depth: 20'

Sealing Material: neat cement

TRANSITION SEAL: Material: benonite

Interval: _____

PUMP INSTALLATION/REPAIR:

Contractor: _____

License Number: _____

Type of Pump: _____

Horse Power: _____

License Type: _____

Expiration Date: _____

WELL/TEST HOLE/ SOIL BORING DESTRUCTION:

Diameter: _____

Total depth: _____

Depth to Water: _____

I will comply with all Codes, Rules and Regulations of the State and County pertaining to or regulating well construction/destruction, call for a grout/destruction inspection at least 24 hours prior to placement of sealing material, notify the Department within 5 days of the completion of my work so a final inspection can be made, and obtain final approval before placing the well in service.

Signature: Scott Bittinger

☐ Property Owner

☐ Well Contractor

Print Name: Scott Bittinger

☐ Agent for Property Owner*

☒ Agent for Well Contractor*

Company: Stratus Environmental, Inc.

Phone: 530-676-2002

Field Phone # if Available: 916-715-6115 (Justin)

Mailing Address: 3330 Carmichael Park Dr. Suite 550

City, State, Zip: Carmichael, CA 95682

A SITE PLAN MUST BE SUBMITTED WITH EACH APPLICATION
PERMIT EXPIRES ONE (1) YEAR FROM DATE ISSUED (UNLESS EXTENDED)

W70027433

CT 35

CALL FOR INSPECTIONS
EH (916) 875-8422
HAZMAT(916) 875-8464

WELL APPLICATION AND PERMIT FORM

ENVIRONMENTAL MANAGEMENT DEPARTMENT
8475 JACKSON ROAD, SUITE 230/240
SACRAMENTO, CA 95826-3904

FOR OFFICE USE ONLY

☐ DISAPPROVED ☒ APPROVED

☐ APPROVED WITH CONDITIONS (See attachment)

By: SPW

Date: 9/22/05

Date Received: 9-8-05

Date Issued: 9/22/05

Total Fee: \$530.00

Permit Number: 142746

SR Number: 16772

Receipt Number: IN 137817

Grout Inspection By: _____

Date: _____

GPS #: _____

Site Number: _____

Actual Well Depth: _____

Actual Grout Depth: _____

Final Inspection By: _____

Date: _____

Depth to first Water: _____

Well Destruction Inspection By: _____

Date: _____

Comments: _____

Inspecting Division: ☐ ENVIRONMENTAL HEALTH

☒ HAZARDOUS MATERIALS

SITE ADDRESS: 2400 Fruitridge Rd

City: Sacramento

Zip: 95822

Nearest Major Cross Street: 24th St.

Parcel Number: _____

Property Owner: Barbara Gormley Morgan Trust, et al

Phone Number: _____

Well Contractor: Cascade Drilling

License Number: 717510

Type: C-57

Contractor Address: 3632 Ormeo Circle

Expiration Date: 1-31-06

City: Rancho Cordova

Zip: 95742

Phone: 638-1169

Well/Boring Identification Number: VW-1

WORK TO BE PERFORMED: (License Required)

☒ Construct Well (C-57)

☐ Repair/Modify Well or Pump (C-57, C-61, Class A)

☐ Test Hole Soil Boring With Destruction (C-57)

☐ Install New Pump (C-57)

☐ Destroy Well (C-57)

☐ Inactivation Permit, (Owner Only)

Comments: _____

☐ Other (state): _____

DISTANCE TO NEAREST:

Leach Field: _____

Leach Pit: _____

Septic Tank: _____

Sewer Line: _____

Stream, Ditch, Drainage Canal: _____

100 Year Flood Plain: _____

INTENDED USE:

☐ Domestic/Private

☐ Public Water System

☐ Irrigation

☐ Cathodic Protection

☐ Monitoring

☒ Extraction/Recovery

☐ Heat Exchanger

☐ Other (state)

Comments: _____

DRILLING METHOD:

☒ Auger

☐ Cable Tool

☐ Driven

☐ Rotary

☐ Other (state)

CONSTRUCTION SPECIFICATIONS:

BOREHOLE: Diameter: 8-inch Depth: 18

Gravel Pack: Yes ☒ No ☐

CASING: Diameter: 2-inch Depth: 18

If Steel, Gauge: _____

Or Thickness: _____

If Plastic, Type: PVC-schedule 40 (MUST MEET ASTM F-480)

If Conductor, Diameter: _____

Depth: _____

GROUT: Diameter: 8" Depth: 11'

Sealing Material: neat cement

TRANSITION SEAL: Material: bentonite

Interval: 1'-2'

PUMP INSTALLATION/REPAIR:

Contractor: _____

License Number: _____

Type of Pump: _____

Horse Power: _____

License Type: _____

Expiration Date: _____

WELL/TEST HOLE/ SOIL BORING DESTRUCTION:

Diameter: _____

Total depth: _____

Depth to Water: _____

I will comply with all Codes, Rules and Regulations of the State and County pertaining to or regulating well construction/destruction, call for a grout/destruction inspection at least 24 hours prior to placement of sealing material, notify the Department within 5 days of the completion of my work so a final inspection can be made, and obtain final approval before placing the well in service.

Signature: Scott Bittinger

☐ Property Owner

☐ Well Contractor

Print Name: Scott Bittinger

☐ Agent for Property Owner*

☒ Agent for Well Contractor*

Company: Shades Environmental, Inc.

Phone: 530-676-2062

Field Phone # if Available: 916-715-6115 (Justin)

Mailing Address: 3330 Cameron Park Dr. Suite 550

City, State, Zip: Cameron Park CA 95682

A SITE PLAN MUST BE SUBMITTED WITH EACH APPLICATION
PERMIT EXPIRES ONE (1) YEAR FROM DATE ISSUED (UNLESS EXTENDED)

WP0027434

CALL FOR INSPECTIONS
EH (916) 875-8422
HAZMAT(916) 875-8464

WELL APPLICATION AND PERMIT FORM

ENVIRONMENTAL MANAGEMENT DEPARTMENT
8475 JACKSON ROAD, SUITE 230/240
SACRAMENTO, CA 95826-3904

FOR OFFICE USE ONLY

☐ DISAPPROVED ☒ APPROVED
☐ APPROVED WITH CONDITIONS (See attachment)
By: SBW Date: 9/22/05 Date Received: 9-8-05 Permit Number: 142747
Grout Inspection By: _____ Date: _____ Date Issued: _____ SR Number: 16772
Actual Well Depth: _____ Actual Grout Depth: _____ Total Fee: \$203.00 Receipt Number: 2N137817
Depth to first Water: _____ GPS #: _____ Site Number: _____
Well Destruction Inspection By: _____ Date: _____
Comments: _____

Inspecting Division: ☐ ENVIRONMENTAL HEALTH ☒ HAZARDOUS MATERIALS
SITE ADDRESS: 2400 Fruitridge Rd City: Sacramento Zip: 95822
Nearest Major Cross Street: 24th St. Parcel Number: _____
Property Owner: Barbara Gornley Morgan Trust, et al Phone Number: _____
Well Contractor: Cascade Drilling License Number: 717560 Type: C-57
Contractor Address: 3632 Omec Circle Expiration Date: 1-31-06
City: Rancho Cordova Zip: 95742 Phone: 638-1169 Well/Boring Identification Number: VW-2

WORK TO BE PERFORMED: (License Required)

☒ Construct Well (C-57) ☐ Repair/Modify Well or Pump (C-57, C-61, Class A) ☐ Test Hole Soil Boring With Destruction (C-57)
☐ Install New Pump (C-57) ☐ Destroy Well (C-57) ☐ Inactivation Permit, (Owner Only)
Comments: _____ ☐ Other (state): _____

DISTANCE TO NEAREST: Leach Field: _____ Leach Pit: _____ Septic Tank: _____ Sewer Line: _____
Stream, Ditch, Drainage Canal: _____ 100 Year Flood Plain: _____

INTENDED USE:

DRILLING METHOD:

CONSTRUCTION SPECIFICATIONS:

☐ Domestic/Private ☒ Auger BOREHOLE: Diameter: 8-inch Depth: 18 Gravel Pack: Yes ☒ No ☐
☐ Public Water System ☐ Cable Tool CASING: Diameter: 2-inch Depth: 18
☐ Irrigation ☐ Driven If Steel, Gauge: _____ Or Thickness: _____
☐ Cathodic Protection ☐ Rotary If Plastic, Type: PVC-Schedule 40 (MUST MEET ASTM F-480)
☐ Monitoring ☐ Other (state) If Conductor, Diameter: _____ Depth: _____
☒ Extraction/Recovery GROUT: Diameter: 8 Depth: 1' Sealing Material: neat cement
☐ Heat Exchanger TRANSITION SEAL: Material: bentonite Interval: _____
☐ Other (state) Comments: _____

PUMP INSTALLATION/REPAIR:

Contractor: _____ License Number: _____
Type of Pump: _____ Horse Power: _____ License Type: _____ Expiration Date: _____

WELL/TEST HOLE/ SOIL BORING DESTRUCTION: Diameter: _____ Total depth: _____ Depth to Water: _____

I will comply with all Codes, Rules and Regulations of the State and County pertaining to or regulating well construction/destruction, call for a grout/destruction inspection at least 24 hours prior to placement of sealing material, notify the Department within 5 days of the completion of my work so a final inspection can be made, and obtain final approval before placing the well in service.

Signature: Scott Bittinger ☐ Property Owner ☐ Well Contractor
Print Name: Scott Bittinger ☐ Agent for Property Owner* ☒ Agent for Well Contractor* SBW
Company: Stratus Environmental, Inc. Phone: 530-676-2002 Field Phone # if Available: 916-715-6115 (Justin)
Mailing Address: 3330 Cameron Park Dr. Suite 550 City, State, Zip: Cameron Park, CA 95682

A SITE PLAN MUST BE SUBMITTED WITH EACH APPLICATION
PERMIT EXPIRES ONE (1) YEAR FROM DATE ISSUED (UNLESS EXTENDED)

APPENDIX C

FIELD DATA SHEETS

Site Number: Kwik Sew
Project No: 2029-2400
Project PM: Greer
Date Sampled: 11-14-05

WZLGO

Development

7	soil	Drums
2	H ₂ O	Drum

Multiplier Values
2"=0.5 4"=2.0 6"=4.4

Site Number: Kierke Spur
Project No. 2029-2420
Project PM Garrett
Date Sampled 11/16/05

Site Address: 2400 Far.
City: Sacto
Sampled By: CAILL

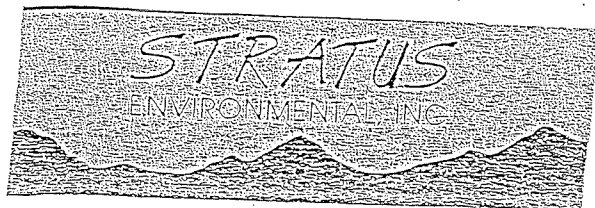
Site Contact Phone No.

[illegible]

(A) Casing water Column
Depth wtr. Depth to Bottom

Multiplier Values
2"=0.5 4"=2.0 6"=4.4

ORIGINAL



Site Address 2400 Frontidge
 City San Jo
 Site Sampled by CHILL

Site Number Kurle Sero
 Project No. 2029.2400
 Project PM Cover
 Date Sampled 11-16-05

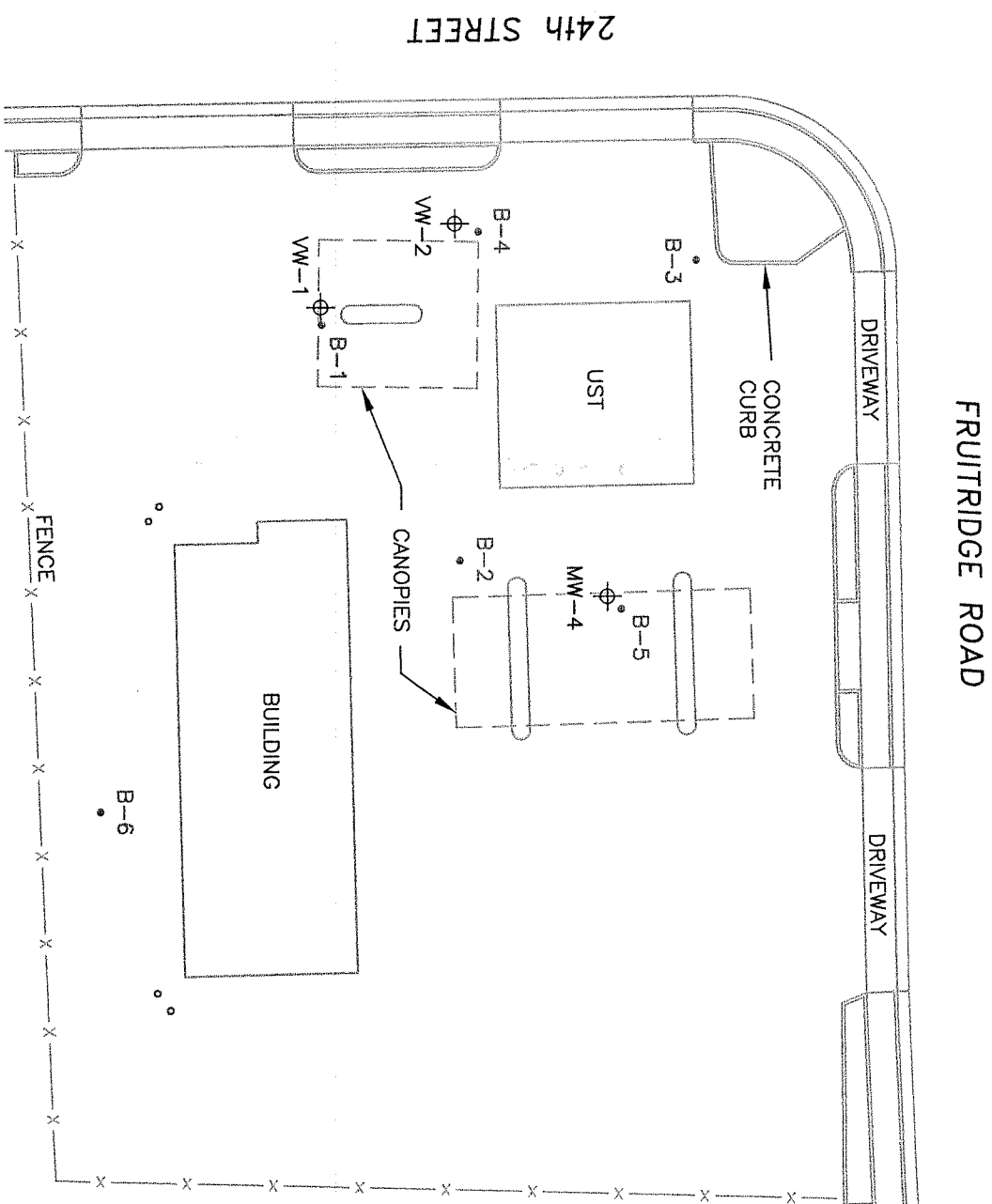
Well ID <u>MW-4</u> <u>Mr. 224</u>					Well ID				
purge start time <u>Bunker</u>					purge start time				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time	<u>18.6</u>	<u>6.89</u>	<u>850</u>	<u>2</u>	time				
time	<u>20.2</u>	<u>6.89</u>	<u>847</u>	<u>3</u>	time				
time	<u>20.2</u>	<u>6.87</u>	<u>814</u>	<u>5</u>	time				
time					time				
purge stop time					pugre stop time				
Well ID					Well ID				
purge start time					purge start time				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time					time				
time					time				
time					time				
time					time				
purge stop time					purge stop time				
Well ID					Well ID				
purge start time					purge start time				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time					time				
time					time				
time					time				
time					time				
purge stop time					purge stop time				
Well ID					Well ID				
purge start time					purge start time				
	Temp C	pH	cond	gallons		Temp C	pH	cond	gallons
time					time				
time					time				
time					time				
time					time				
purge stop time					purge stop time				

APPENDIX D

SURVEYOR'S MAP

Monitoring Well Exhibit

Prepared For:
Stratus Environmental, Inc.



DESCRIPTION	NORTHING	EASTING	ELEV (PVC)	ELEV (RIM/GND)
MW-4	1953278. 2	6709640. 8	23. 97	24. 6
VW-1	1953230. 6	6709592. 7	23. 82	24. 2
VW-2	1953253. 0	6709579. 0	23. 53	24. 1
B-1	1953230. 8	6709595. 6		24. 2
B-2	1953253. 7	6709634. 7		24. 8
B-3	1953293. 3	6709585. 1		24. 2
B-4	1953257. 0	6709580. 3		24. 2
B-5	1953280. 5	6709642. 8		24. 6
B-6	1953193. 6	6709675. 7		25. 0

DESCRIPTION	LATITUDE	LONGITUDE
MW-4	38. 5245647	-121. 4827645
VW-1	38. 5244348	-121. 4829336
VW-2	38. 5244965	-121. 4829811
B-1	38. 5244354	-121. 4829235
B-2	38. 5244976	-121. 4827861
B-3	38. 5246070	-121. 4829590
B-4	38. 5245074	-121. 4829764
B-5	38. 5245711	-121. 4827573
B-6	38. 5243319	-121. 4826441

BASIS OF COORDINATES AND ELEVATIONS:

COORDINATES ARE CALIFORNIA STATE PLANE ZONE 2 COORDINATES FROM GPS OBSERVATIONS USING UNIVERSITY OF CALIFORNIA BAY AREA DEFORMATION CORS STATION OBSERVATION FILES AND BASED ON THE CALIFORNIA SPATIAL REFERENCE CENTER DATUM, REFERENCE EPOCH 2000.35.

COORDINATE DATUM IS NAD 83(1986).

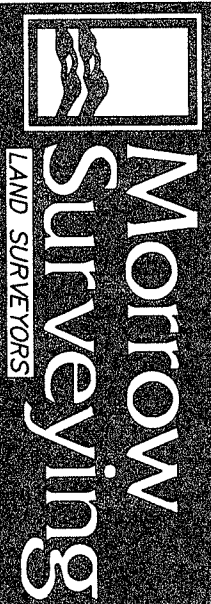
DATUM ELLIPSOID IS GRS80.

REFERENCE GEOID IS NGS99.

CORS STATIONS USED WERE CHO1 AND SUTB.

VERTICAL DATUM IS NAVD 88 FROM GPS OBSERVATIONS.

KWIK SERV Fueling Station
2400 Fruitridge Road
Sacramento
Sacramento County
California



1450 Harbor Blvd. Ste. D
West Sacramento
California 95691
(916) 372-8124
jeff@morrowsurveying.com

Date: 11-29-05
Scale: 1" = 30'
Sheet 1 of 1
Revised:
Field Book: MW-15
Dwg. No. 7502-038 CT

APPENDIX E

CERTIFIED ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

FILE COPY
COPY

ANALYTICAL REPORT

Stratus Environmental
3330 Cameron Park Drive
Cameron Park, CA 956828861

Attn: Scott Bittinger
Phone: (530) 676-6009
Fax: (530) 676-6005
Date Received : 11/03/05

DEC 01 2005

Job#: 2029-2400-1/ Kwik Serv

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B/DHS LUFT Manual
Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting Limit	Date Sampled	Date Analyzed
Client ID :	TPH Purgeable	ND	1,000 µg/Kg	10/31/05	11/04/05
MW-4-16	Tertiary Butyl Alcohol (TBA)	ND	500 µg/Kg	10/31/05	11/04/05
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	5.0 µg/Kg	10/31/05	11/04/05
STR05110325-01A	Di-isopropyl Ether (DIPE)	ND	20 µg/Kg	10/31/05	11/04/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	20 µg/Kg	10/31/05	11/04/05
	1,2-Dichloroethane	ND	20 µg/Kg	10/31/05	11/04/05
	Benzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Tertiary Amyl Methyl Ether (TAME)	ND	20 µg/Kg	10/31/05	11/04/05
	Toluene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Ethylbenzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	m,p-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05
	o-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05
Client ID :	TPH Purgeable	ND	1,000 µg/Kg	10/31/05	11/04/05
MW-4-31	Tertiary Butyl Alcohol (TBA)	ND	500 µg/Kg	10/31/05	11/04/05
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	5.0 µg/Kg	10/31/05	11/04/05
STR05110325-02A	Di-isopropyl Ether (DIPE)	ND	20 µg/Kg	10/31/05	11/04/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	20 µg/Kg	10/31/05	11/04/05
	1,2-Dichloroethane	ND	20 µg/Kg	10/31/05	11/04/05
	Benzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Tertiary Amyl Methyl Ether (TAME)	ND	20 µg/Kg	10/31/05	11/04/05
	Toluene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Ethylbenzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	m,p-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05
	o-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05
Client ID :	TPH Purgeable	ND	1,000 µg/Kg	10/31/05	11/04/05
VW-1-11	Tertiary Butyl Alcohol (TBA)	ND	500 µg/Kg	10/31/05	11/04/05
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	5.0 µg/Kg	10/31/05	11/04/05
STR05110325-03A	Di-isopropyl Ether (DIPE)	ND	20 µg/Kg	10/31/05	11/04/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	20 µg/Kg	10/31/05	11/04/05
	1,2-Dichloroethane	ND	20 µg/Kg	10/31/05	11/04/05
	Benzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Tertiary Amyl Methyl Ether (TAME)	ND	20 µg/Kg	10/31/05	11/04/05
	Toluene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Ethylbenzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	m,p-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05
	o-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Client ID :	TPH Purgeable	ND	1,000 µg/Kg	10/31/05	11/04/05
VW-1-18	Tertiary Butyl Alcohol (TBA)	ND	500 µg/Kg	10/31/05	11/04/05
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	5.0 µg/Kg	10/31/05	11/04/05
STR05110325-04A	Di-isopropyl Ether (DIPE)	ND	20 µg/Kg	10/31/05	11/04/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	20 µg/Kg	10/31/05	11/04/05
	1,2-Dichloroethane	ND	20 µg/Kg	10/31/05	11/04/05
	Benzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Tertiary Amyl Methyl Ether (TAME)	ND	20 µg/Kg	10/31/05	11/04/05
	Toluene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Ethylbenzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	m,p-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05
	o-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05
Client ID :	TPH Purgeable	ND	1,000 µg/Kg	10/31/05	11/04/05
VW-2-11	Tertiary Butyl Alcohol (TBA)	ND	500 µg/Kg	10/31/05	11/04/05
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	5.0 µg/Kg	10/31/05	11/04/05
STR05110325-05A	Di-isopropyl Ether (DIPE)	ND	20 µg/Kg	10/31/05	11/04/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	20 µg/Kg	10/31/05	11/04/05
	1,2-Dichloroethane	ND	20 µg/Kg	10/31/05	11/04/05
	Benzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Tertiary Amyl Methyl Ether (TAME)	ND	20 µg/Kg	10/31/05	11/04/05
	Toluene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Ethylbenzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	m,p-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05
	o-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05
Client ID :	TPH Purgeable	ND	1,000 µg/Kg	10/31/05	11/04/05
VW-2-16	Tertiary Butyl Alcohol (TBA)	ND	500 µg/Kg	10/31/05	11/04/05
Lab ID :	Methyl tert-butyl ether (MTBE)	ND	5.0 µg/Kg	10/31/05	11/04/05
STR05110325-06A	Di-isopropyl Ether (DIPE)	ND	20 µg/Kg	10/31/05	11/04/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	20 µg/Kg	10/31/05	11/04/05
	1,2-Dichloroethane	ND	20 µg/Kg	10/31/05	11/04/05
	Benzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Tertiary Amyl Methyl Ether (TAME)	ND	20 µg/Kg	10/31/05	11/04/05
	Toluene	ND	5.0 µg/Kg	10/31/05	11/04/05
	Ethylbenzene	ND	5.0 µg/Kg	10/31/05	11/04/05
	m,p-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05
	o-Xylene	ND	5.0 µg/Kg	10/31/05	11/04/05

Reported in micrograms per kilogram, per client request.

ND = Not Detected

Roger Scholl

Randy Gardner

Walter Hinchman

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

PS

11/10/05

Report Date



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
11-Nov-05

OC Summary Report

Work Order:
05110325

Method Blank

Type: MBLK Test Code: EPA Method SW8015B/DHS LUFT Manual

File ID: C:\HPCHEM\MS07\DATA\051104\05110409.D

Batch ID: MS07S3452B

Analysis Date: 11/04/2005 11:17

Sample ID: MBLK MS07S3452B

Units: µg/Kg

Run ID: MSD_07_051104A

Prep Date: 11/04/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	ND	1000								
Surr: 1,2-Dichloroethane-d4	198		200		99	68	119			
Surr: Toluene-d8	203		200		102	84	116			
Surr: 4-Bromofluorobenzene	203		200		101	72	118			

Laboratory Control Spike

Type: LCS

Test Code: EPA Method SW8015B/DHS LUFT Manual

File ID: C:\HPCHEM\MS07\DATA\051104\05110426.D

Batch ID: MS07S3452B

Analysis Date: 11/04/2005 17:37

Sample ID: GLCS MS07S3452B

Units: µg/Kg

Run ID: MSD_07_051104A

Prep Date: 11/04/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	16200	2000	16000		101	60	153			
Surr: 1,2-Dichloroethane-d4	384		400		96	68	119			
Surr: Toluene-d8	395		400		99	84	116			
Surr: 4-Bromofluorobenzene	397		400		99	72	118			

Sample Matrix Spike

Type: MS

Test Code: EPA Method SW8015B/DHS LUFT Manual

File ID: C:\HPCHEM\MS07\DATA\051104\05110427.D

Batch ID: MS07S3452B

Analysis Date: 11/04/2005 17:59

Sample ID: 05110229-03AGS

Units: µg/Kg

Run ID: MSD_07_051104A

Prep Date: 11/04/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	14300	2000	16000		89	8	177			
Surr: 1,2-Dichloroethane-d4	389		400		97	68	119			
Surr: Toluene-d8	404		400		101	84	116			
Surr: 4-Bromofluorobenzene	396		400		99	72	118			

Sample Matrix Spike Duplicate

Type: MSD

Test Code: EPA Method SW8015B/DHS LUFT Manual

File ID: C:\HPCHEM\MS07\DATA\051104\05110428.D

Batch ID: MS07S3452B

Analysis Date: 11/04/2005 18:21

Sample ID: 05110229-03AGSD

Units: µg/Kg

Run ID: MSD_07_051104A

Prep Date: 11/04/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	13500	2000	16000		85	8	177	14260	5.2(45)	
Surr: 1,2-Dichloroethane-d4	369		400		92	68	119			
Surr: Toluene-d8	398		400		99	84	116			
Surr: 4-Bromofluorobenzene	403		400		101	72	118			

Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Reported in micrograms per kilogram, per client request.



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
11-Nov-05

OC Summary Report

Work Order:
05110325

Method Blank

Type: MBLK Test Code: EPA Method SW8260B

File ID: C:\HPCHEM\MS07\DATA\051104\05110409.D

Batch ID: MS07S3452A

Analysis Date: 11/04/2005 11:17

Sample ID: MBLK MS07S3452A

Units: µg/Kg

Run ID: MSD_07_051104A

Prep Date: 11/04/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Tertiary Butyl Alcohol (TBA)	ND	500								
Methyl tert-butyl ether (MTBE)	ND	5								
Di-isopropyl Ether (DIPE)	ND	20								
Ethyl Tertiary Butyl Ether (ETBE)	ND	20								
1,2-Dichloroethane	ND	20								
Benzene	ND	5								
Tertiary Amyl Methyl Ether (TAME)	ND	20								
Toluene	ND	5								
Ethylbenzene	ND	5								
m,p-Xylene	ND	5								
o-Xylene	ND	5								
Surr: 1,2-Dichloroethane-d4	198		200		99	68	119			
Surr: Toluene-d8	203		200		102	84	116			
Surr: 4-Bromofluorobenzene	203		200		101	72	118			

Laboratory Control Spike

Type: LCS

Test Code: EPA Method SW8260B

File ID: C:\HPCHEM\MS07\DATA\051104\05110423.D

Batch ID: MS07S3452A

Analysis Date: 11/04/2005 16:30

Sample ID: LCS MS07S3452A

Units: µg/Kg

Run ID: MSD_07_051104A

Prep Date: 11/04/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	420	10	400		105	58	147			
Toluene	428	10	400		107	58	148			
Ethylbenzene	415	10	400		104	59	151			
m,p-Xylene	430	10	400		108	60	155			
o-Xylene	433	10	400		108	62	155			
Surr: 1,2-Dichloroethane-d4	430		400		108	68	119			
Surr: Toluene-d8	397		400		99	84	116			
Surr: 4-Bromofluorobenzene	396		400		99	72	118			

Sample Matrix Spike

Type: MS

Test Code: EPA Method SW8260B

File ID: C:\HPCHEM\MS07\DATA\051104\05110424.D

Batch ID: MS07S3452A

Analysis Date: 11/04/2005 16:53

Sample ID: 05110229-03AMS

Units: µg/Kg

Run ID: MSD_07_051104A

Prep Date: 11/04/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	418	10	400		0 104	30	151			
Toluene	430	10	400		0 107	25	159			
Ethylbenzene	411	10	400		0 103	27	161			
m,p-Xylene	421	10	400		0 105	22	170			
o-Xylene	430	10	400		0 108	22	171			
Surr: 1,2-Dichloroethane-d4	394		400		99	68	119			
Surr: Toluene-d8	406		400		102	84	116			
Surr: 4-Bromofluorobenzene	395		400		99	72	118			

Sample Matrix Spike Duplicate

Type: MSD

Test Code: EPA Method SW8260B

File ID: C:\HPCHEM\MS07\DATA\051104\05110425.D

Batch ID: MS07S3452A

Analysis Date: 11/04/2005 17:15

Sample ID: 05110229-03AMSD

Units: µg/Kg

Run ID: MSD_07_051104A

Prep Date: 11/04/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	388	10	400		0 97	30	151	417.5	7.2(37)	
Toluene	410	10	400		0 103	25	159	429.9	4.6(40)	
Ethylbenzene	398	10	400		0 99	27	161	411.4	3.3(39)	
m,p-Xylene	399	10	400		0 99.7	22	170	421.1	5.4(40)	
o-Xylene	409	10	400		0 102	22	171	430.2	5.1(41)	
Surr: 1,2-Dichloroethane-d4	385		400		96	68	119			
Surr: Toluene-d8	410		400		103	84	116			
Surr: 4-Bromofluorobenzene	397		400		99	72	118			



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
11-Nov-05

OC Summary Report

Work Order:
05110325

Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha Analytical, Inc.

Phone : (775) 355-1044 FAX : (775) 355-0406

Sample Receipt Checklist

Date Report is due to Client : 11/11/2005

Date of Notice : 11/3/2005 1:53:38 P

Please take note of any NO check marks. If we receive no response concerning these items within 24 hours of the date of this notice, all of the samples will be analyzed as requested.

Client Name: **Stratus Environmental**

Project ID : **2029-2400-1/ Kwik Serv**

Project Manager: **Scott Bittinger**

Client's EMail: **sbittinger@stratusinc.net**

Work Order Number: **STR05110325**

Client's Phone: **(530) 676-6009**

Date Received: **11/3/2005**

Client's FAX: **(530) 676-6005**

Received by: **Graciela Navarrete**

Chain of Custody (COC) Information

Carrier name: FedEx

Chain of custody present ?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	
Custody seals intact on shipping container/cooler ?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles ?	Yes <input type="checkbox"/>	<input type="checkbox"/> No	Not Present <input checked="" type="checkbox"/>
Chain of custody signed when relinquished and received ?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	
Chain of custody agrees with sample labels ?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	
Sample ID noted by Client on COC ?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	
Date and time of collection noted by Client on COC ?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	
Samplers's name noted on COC ?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	
Internal Chain of Custody (COC) requested ?	Yes <input type="checkbox"/>	<input checked="" type="checkbox"/> No	
Sub Contract Lab Used :	None <input checked="" type="checkbox"/>	<input type="checkbox"/> SEM	Other (see comments) <input type="checkbox"/>

Sample Receipt Information

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	Not Present <input type="checkbox"/>
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	
Container/Temp Blank temperature in compliance (0-6°C)?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	Cooler Temperature 4°C
Water - VOA vials have zero headspace / no bubbles?	Yes <input type="checkbox"/>	<input type="checkbox"/> No	No VOA vials submitted <input checked="" type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	<input type="checkbox"/> No	
TOC Water - pH acceptable upon receipt (H2SO4 pH<2)?	Yes <input type="checkbox"/>	<input type="checkbox"/> No	N/A <input checked="" type="checkbox"/>

Analytical Requirement Information

Are non-Standard or Modified methods requested ?	Yes <input type="checkbox"/>	<input checked="" type="checkbox"/> No	
Are there client specific Project requirements ?	Yes <input type="checkbox"/>	<input checked="" type="checkbox"/> No	If YES : see the Chain of Custody (COC)

Comments :

Billing Information :

Page: 1 of 1

CHAIN-OF-CUSTODY RECORD

CA

Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Client:

Stratus Environmental
3330 Cameron Park Drive
Suite 550

Cameron Park, CA 95682-8861

Report Attention : Scott Bittinger

CC Report : Job : 2029-2400-1/ Kwik Serv

PO :

QC Level : S3 = Final Rpt, MBLK, LCS, MS/MSD With Surrogates

Client's COC # : 6505

Report Due By : 5:00 PM On : 11-Nov-05

EDD Required : Yes

Sampled by : Justin Crose

Cooler Temp : 4 °C

Date Printed:

03-Nov-05

Alpha Sample ID	Client Sample ID	Matrix	Collection Date	No. of Bottles				Requested Tests			Sample Remarks
				SO	ORG	SUB	TAT	PWS #	TPH/P_S	VOC_S	
STR05110325-01A	MW-4-16	SO	10/31/05 06:16	1	0	0	6		GAS-C	BTEX/ 50XY/ 1,2- DCA_C	
STR05110325-02A	MW-4-31	SO	10/31/05 06:42	1	0	0	6		GAS-C	BTEX/ 50XY/ 1,2- DCA_C	
STR05110325-03A	VW-1-11	SO	10/31/05 08:22	1	0	0	6		GAS-C	BTEX/ 50XY/ 1,2- DCA_C	
STR05110325-04A	VW-1-18	SO	10/31/05 08:44	1	0	0	6		GAS-C	BTEX/ 50XY/ 1,2- DCA_C	
STR05110325-05A	VW-2-11	SO	10/31/05 09:43	1	0	0	6		GAS-C	BTEX/ 50XY/ 1,2- DCA_C	
STR05110325-06A	VW-2-16	SO	10/31/05 09:53	1	0	0	6		GAS-C	BTEX/ 50XY/ 1,2- DCA_C	

Comments: Security seals intact, ice frozen. Ca samples. Send copy of receipt checklist with final report. :

Signature

Print Name

Company

Date/Time

Logged in by:

Alpha Analytical, Inc.

11-Nov-05 1:50

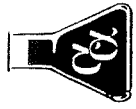
NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report.

Matrix Type : AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other)

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

Billing Information:

Name Stratus Environmental, Inc.
 Address 3330 Cameron Park Dr Suite 550
 City, State, Zip Cameron Park, CA 95682
 Phone Number (530) 676-6000 Fax (530) 676-6005



Alpha Analytical, Inc.
 255 Glendale Avenue, Suite 21
 Sparks, Nevada 89431-5778
 Phone (775) 355-1044
 Fax (775) 355-0406

Samples Collected From Which State?

AZ ☐ CA ☒ NV ☐ WA ☐
 ID ☐ OR ☐ OTHER ☐ Page # 1 of 1

Client Name		P.O. #		Job #		Analyses Required		6505	
Address		E-Mail Address		Phone #		Fax #		Required QC Level?	
City, State, Zip		Report Attention		Sample Description		Total and type of containers		I II III IV	
Time Sampled	Date	Matrix* See Key Below	Office Use Only	Lab ID Number	Sampled by	TAT	Field Filled	Global ID #	REMARKS
6:16	10/31	SO		05/110325-01	MW-4-16	S		1B	
6:42	10/31	SO		-02	MW-4-31	S		1B	
8:22	10/31	SO		-03	VW-1-11	S		1B	
8:44	10/31	SO		-04	VW-1-18	S		1B	
9:43	10/31	SO		-05	VW-2-11	S		1B	
9:53	10/31	SO		-06	VW-2-16	S		1B	

ADDITIONAL INSTRUCTIONS:

Signature		Print Name		Company		Date		Time	
Relinquished by	<u>Justin Crose</u>	<u>Justin Crose</u>	<u>Stratus Environmental</u>	<u>11/1/05</u>	<u>16:45</u>				
Received by	<u>Lisa Brylow</u>	<u>Lisa Brylow</u>	<u>ALPHA ANALYTICAL</u>	<u>11-2-05</u>	<u>14:00</u>				
Relinquished by	<u>Ch. Navarrete</u>	<u>Ch. Navarrete</u>	<u>Alpha</u>	<u>11-3-05</u>	<u>1:50</u>				
Received by									

*Key: AQ - Aqueous SO - Soil WA - Waste OT - Other

**L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this coc. The liability of the laboratory is limited to the amount paid for the report.



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FILE COPY
COPY

ANALYTICAL REPORT

Stratus Environmental
3330 Cameron Park Drive
Cameron Park, CA 956828861

Attn: Gowri Kowtha
Phone: (530) 676-6001
Fax: (530) 676-6005
Date Received : 11/17/05

Job#: Kwik Serv

Total Petroleum Hydrocarbons - Purgeable (TPH-P) EPA Method SW8015B/DHS LUFT Manual
Volatile Organic Compounds (VOCs) EPA Method SW8260B

	Parameter	Concentration	Reporting	Date	Date
			Limit	Sampled	Analyzed
Client ID :	TPH Purgeable	ND	50 µg/L	11/16/05	11/18/05
MW-4	Tertiary Butyl Alcohol (TBA)	ND	10 µg/L	11/16/05	11/18/05
Lab ID :	Methyl tert-butyl ether (MTBE)	8.9	0.50 µg/L	11/16/05	11/18/05
STR05111705-01A	Di-isopropyl Ether (DIPE)	ND	1.0 µg/L	11/16/05	11/18/05
	Ethyl Tertiary Butyl Ether (ETBE)	ND	1.0 µg/L	11/16/05	11/18/05
	1,2-Dichloroethane	ND	1.0 µg/L	11/16/05	11/18/05
	Benzene	ND	0.50 µg/L	11/16/05	11/18/05
	Tertiary Amyl Methyl Ether (TAME)	ND	1.0 µg/L	11/16/05	11/18/05
	Toluene	ND	0.50 µg/L	11/16/05	11/18/05
	Ethylbenzene	ND	0.50 µg/L	11/16/05	11/18/05
	m,p-Xylene	ND	0.50 µg/L	11/16/05	11/18/05
	o-Xylene	ND	0.50 µg/L	11/16/05	11/18/05

Reported in micrograms per liter, per client request.

ND = Not Detected

Roger Scholl

Randy Gardner

Walter Hinchman

Roger L. Scholl, Ph.D., Laboratory Director • Randy Gardner, Laboratory Manager • Walter Hinchman, Quality Assurance Officer
Sacramento, CA • (916) 366-9089 / Las Vegas, NV • (702) 281-4848 / info@alpha-analytical.com

PS

11/25/05

Report Date



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778
(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

VOC Sample Preservation Report

Work Order: STR05111705

Project: Kwik Serv

Alpha's Sample ID	Client's Sample ID	Matrix	pH
05111705-01A	MW-4	Aqueous	4

11/25/05

Report Date



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
25-Nov-05

OC Summary Report

Work Order:
05111705

Method Blank

File ID: D:\HPCHEM\MS10\DATA\051118\05111805.D

Type: MBLK

Test Code: EPA Method SW8015B/DHS LUFT Manual

Batch ID: MS10W1118B

Analysis Date: 11/18/2005 07:08

Sample ID: MBLK MS10W1118B

Units : µg/L

Run ID: MSD_10_051118A

Prep Date: 11/18/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	ND	50								
Surr: 1,2-Dichloroethane-d4	9.87		10		99	76	127			
Surr: Toluene-d8	11		10		110	84	113			
Surr: 4-Bromofluorobenzene	10.6		10		106	79	119			

Laboratory Control Spike

File ID: D:\HPCHEM\MS10\DATA\051118\05111803.D

Type: LCS

Test Code: EPA Method SW8015B/DHS LUFT Manual

Batch ID: MS10W1118B

Analysis Date: 11/18/2005 06:27

Sample ID: GLCS MS10W1118B

Units : µg/L

Run ID: MSD_10_051118A

Prep Date: 11/18/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	355	50	400		89	78	127			
Surr: 1,2-Dichloroethane-d4	9.88		10		99	76	127			
Surr: Toluene-d8	10.8		10		108	84	113			
Surr: 4-Bromofluorobenzene	10.7		10		107	79	119			

Sample Matrix Spike

File ID: D:\HPCHEM\MS10\DATA\051118\05111817.D

Type: MS

Test Code: EPA Method SW8015B/DHS LUFT Manual

Batch ID: MS10W1118B

Analysis Date: 11/18/2005 11:18

Sample ID: 05111705-01AGS

Units : µg/L

Run ID: MSD_10_051118A

Prep Date: 11/18/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	1540	250	2000	0	77	70	139			
Surr: 1,2-Dichloroethane-d4	47.8		50		96	76	127			
Surr: Toluene-d8	51.9		50		104	84	113			
Surr: 4-Bromofluorobenzene	49.8		50		99.6	79	119			

Sample Matrix Spike Duplicate

File ID: D:\HPCHEM\MS10\DATA\051118\05111818.D

Type: MSD

Test Code: EPA Method SW8015B/DHS LUFT Manual

Batch ID: MS10W1118B

Analysis Date: 11/18/2005 11:40

Sample ID: 05111705-01AGSD

Units : µg/L

Run ID: MSD_10_051118A

Prep Date: 11/18/2005

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
TPH Purgeable	1680	250	2000	0	84	70	139	1536	8.8(12)	
Surr: 1,2-Dichloroethane-d4	47.1		50		94	76	127			
Surr: Toluene-d8	50.9		50		102	84	113			
Surr: 4-Bromofluorobenzene	50.3		50		101	79	119			

Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Reported in micrograms per liter, per client request.



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

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Date:
25-Nov-05

OC Summary Report

Work Order:
05111705

Method Blank

Type: **MBLK** Test Code: **EPA Method SW8260B**

File ID: **D:\HPCHEM\MS10\DATA\051118\05111805.D**

Batch ID: **MS10W1118A**

Analysis Date: **11/18/2005 07:08**

Sample ID: **MBLK MS10W1118A**

Units: **µg/L**

Run ID: **MSD_10_051118A**

Prep Date: **11/18/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Tertiary Butyl Alcohol (TBA)	ND	10								
Methyl tert-butyl ether (MTBE)	ND	0.5								
Di-isopropyl Ether (DIPE)	ND	1								
Ethyl Tertiary Butyl Ether (ETBE)	ND	1								
1,2-Dichloroethane	ND	1								
Benzene	ND	0.5								
Tertiary Amyl Methyl Ether (TAME)	ND	1								
Toluene	ND	0.5								
Ethylbenzene	ND	0.5								
m,p-Xylene	ND	0.5								
o-Xylene	ND	0.5								
Surr: 1,2-Dichloroethane-d4	9.87		10		99	76	127			
Surr: Toluene-d8	11		10		110	84	113			
Surr: 4-Bromofluorobenzene	10.6		10		106	79	119			

Laboratory Control Spike

Type: **LCS** Test Code: **EPA Method SW8260B**

File ID: **D:\HPCHEM\MS10\DATA\051118\05111804.D**

Batch ID: **MS10W1118A**

Analysis Date: **11/18/2005 06:47**

Sample ID: **LCS MS10W1118A**

Units: **µg/L**

Run ID: **MSD_10_051118A**

Prep Date: **11/18/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	11	0.5	10		110	81	122			
Toluene	11.1	0.5	10		111	80	120			
Ethylbenzene	9.97	0.5	10		99.7	80	120			
m,p-Xylene	9.78	0.5	10		98	80	129			
o-Xylene	9.12	0.5	10		91	80	129			
Surr: 1,2-Dichloroethane-d4	10.5		10		105	76	127			
Surr: Toluene-d8	10.5		10		105	84	113			
Surr: 4-Bromofluorobenzene	10.7		10		107	79	119			

Sample Matrix Spike

Type: **MS** Test Code: **EPA Method SW8260B**

File ID: **D:\HPCHEM\MS10\DATA\051118\05111815.D**

Batch ID: **MS10W1118A**

Analysis Date: **11/18/2005 10:36**

Sample ID: **05111705-01AMS**

Units: **µg/L**

Run ID: **MSD_10_051118A**

Prep Date: **11/18/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	46.3	1.3	50	0	93	74	125			
Toluene	45.2	1.3	50	0	90	76	120			
Ethylbenzene	42.8	1.3	50	0	86	77	124			
m,p-Xylene	42	1.3	50	0	84	73	130			
o-Xylene	41.6	1.3	50	0	83	74	131			
Surr: 1,2-Dichloroethane-d4	49.7		50		99	76	127			
Surr: Toluene-d8	49.9		50		99.7	84	113			
Surr: 4-Bromofluorobenzene	51.3		50		103	79	119			

Sample Matrix Spike Duplicate

Type: **MSD** Test Code: **EPA Method SW8260B**

File ID: **D:\HPCHEM\MS10\DATA\051118\05111816.D**

Batch ID: **MS10W1118A**

Analysis Date: **11/18/2005 10:57**

Sample ID: **05111705-01AMSD**

Units: **µg/L**

Run ID: **MSD_10_051118A**

Prep Date: **11/18/2005**

Analyte	Result	PQL	SpkVal	SpkRefVal	%REC	LowLimit	HighLimit	RPDRefVal	%RPD(Limit)	Qual
Benzene	48.9	1.3	50	0	98	74	124	46.3	5.5(13)	
Toluene	47.6	1.3	50	0	95	76	119	45.24	5.1(13)	
Ethylbenzene	45.3	1.3	50	0	91	77	124	42.84	5.5(13)	
m,p-Xylene	44.5	1.3	50	0	89	73	130	42.01	5.8(14)	
o-Xylene	43.6	1.3	50	0	87	74	131	41.6	4.7(13)	
Surr: 1,2-Dichloroethane-d4	50.2		50		100	76	127			
Surr: Toluene-d8	49.7		50		99	84	113			
Surr: 4-Bromofluorobenzene	51.9		50		104	79	119			



Alpha Analytical, Inc.

255 Glendale Ave. • Suite 21 • Sparks, Nevada 89431-5778

(775) 355-1044 • (775) 355-0406 FAX • 1-800-283-1183

Date:
25-Nov-05

QC Summary Report

Work Order:
05111705

Comments:

Calculations are based off of raw (non-rounded) data. However, for reporting purposes, all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Alpha Analytical, Inc.

Phone : (775) 355-1044 FAX : (775) 355-0406

Sample Receipt Checklist

Date Report is due to Client : 11/28/2005

Date of Notice : 11/17/2005 1:15:55

Please take note of any NO check marks. If we receive no response concerning these items within 24 hours of the date of this notice, all of the samples will be analyzed as requested.

Client Name: **Stratus Environmental**

Project ID :

Project Manager: **Gowri Kowtha**

Client's EMail: **gkowtha@stratusinc.net**

Work Order Number: **STR05111705**

Client's Phone: **(530) 676-6001**

Client's FAX: **(530) 676-6005**

Date Received: **11/17/2005**

Received by: **Stephanie Sifuentes**

Chain of Custody (COC) Information

Carrier name **FedEx**

Chain of custody present ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Custody seals intact on shipping container/cooler ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles ?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody signed when relinquished and received ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample ID noted by Client on COC ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Date and time of collection noted by Client on COC ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samplers's name noted on COC ?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Internal Chain of Custody (COC) requested ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Sub Contract Lab Used :	None <input checked="" type="checkbox"/>	SEM <input type="checkbox"/>	Other (see comments) <input type="checkbox"/>

Sample Receipt Information

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance (0-6°C)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Cooler Temperature 4 °C
Water - VOA vials have zero headspace / no bubbles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
TOC Water - pH acceptable upon receipt (H2SO4 pH<2)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>

Analytical Requirement Information

Are non-Standard or Modified methods requested ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Are there client specific Project requirements ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	If YES : see the Chain of Custody (COC)

Comments : **One day added to TAT due to holiday**

CHAIN-OF-CUSTODY RECORD

CA

WorkOrder : STR05111705

Report Due By : 5:00 PM On : 28-Nov-05

Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21 Sparks, Nevada 89431-5778

TEL: (775) 355-1044 FAX: (775) 355-0406

Gowri Kowtha

TEL: (530) 676-6001

FAX: (530) 676-6005

Email gkowtha@stratusinc.net

Client: Stratus Environmental

3330 Cameron Park Drive

Suite 550

Cameron Park, CA 95682-8861

Report Attention : Gowri Kowtha

CC Report :

EDD Required : Yes

Sampled by : Chill

Job :

PO :

Client's COC # : 06770

Cooler Temp : 4 °C

Date Printed:
17-Nov-05

QC Level : S3 = Final Rpt, MBLK, LCS, MS/MSD With Surrogates

Alpha Sample ID	Client Sample ID	Matrix	Collection Date	No. of Bottles			Requested Tests			Sample Remarks
				ORG	SUB	TAT	TPH/P_W	VOC_W		
STR05111705-01A	MW-4	AQ	11/16/05 07:11	5	0	6	GAS	BTEX(OXY)/ 1,2DCA_C		

Comments:

Security seals, frozen ice. Send copy of receipt checklist with final report. One day added to TAT due to holiday.

Logged in by:

Signature

Print Name

Company

Date/Time

S. SIEMENS

Alpha Analytical, Inc.

11/17/05 1:15

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for the report.

Matrix Type : AQ(Aqueous) AR(Air) SO(Soil) WS(Waste) DW(Drinking Water) OT(Other)

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other

